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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interests of Lake Carriers, and improve the character of the service rendered to the public.

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TO MAINTAIN LAKE LEVELS.

The attention of George Y. Wisner, of Detroit, who is a member of the United States Deep Waterways Commission, was called this week to the objections being made by prominent Canadians to the project to raise the water levels of the lakes, because it would flood Canadian lowlands. In this connection he made some interesting comments:

"Nothing can or ought to be said until the report of the board has been published. The publication has been ordered by Congress and included in the report will be various drawings showing just what has been recommended and what the results would be. The board in no way intends to further this project. It was created for the purpose of finding out what can be done and what the results would be and when those interested read the report they will find that all the data possible has been collected.

"Let me say here that nothing will ever be done except by the consent of both governments. William Newman, provincial land surveyor, hits the nail on the head when he says that the matter should be dealt with by a joint commission of engineers appointed by the United States and Canada. That is just what will havs to be done and it is the only feasible way of completing the project. Canada has some very able engineers and the appointment of such a commission to consider the matter in detail will bring about a settlement without any trouble.

"There need be no misapprehension of what has been pointed out by the board when the report is read and above all nothing can be done without the consent of the Canadian government. If the representatives of the latter decide that it is against their interests to go into the project then it stops right where it is now and nothing has been done so far other than to point out a remedy for raising levels. By this we do not mean to raise the high levels, as some fear, but to raise the lower ones. Another point is that it is not intend ed to raise the level of Lake Erie, as has been said, the board simply starting that if a dam is placed at the foot of Lake Erie it will give the desired remedy."

MICHIPICOTON IRON ORES.

At the Canadian Institute, recently, Dr. Coleman, of the School of Practical Science, read a paper on the "Iron Ores of Michipicoton, and their Geological Relationship." Owing to the advance in the price of iron, he said, all the world is on the lookout for iron ores. The immense deposits of rich and pure ore in Michigan and Minnesota are being drawn on more and more rapidly, and cannot last forever. Fortunately equally immense deposits of iron ore exist in Ontario to the north and west of Lake Superior, on the Mattawin and Atikokan rivers, and within a year what may prove to be a new series of deposits have been found to the northwest of Lake Superior, near Michipicoton, having in many respects a close likeness to the famous Vermillion range of Minnesota. The new iron range consists chiefly of very fine grained sandstone, running into chist and jasper at times. with magnetic iron ore between the layers. This range has been followed thirty or forty miles. Only one important ore deposit has yet been opened up, and that is the Helen mine, belonging to the Clergues, northwest of Wawa Lake. Here there are in sight some hundreds of thousands of tons of high grade brown hematite, which will be tapped by the railway now under construction from Gros Cap Harbor.

Deposits of red hematite are known to exist on the range, but their extent has not been determined. The sandstone or jasper, with bands of iron ore, is said to be found at many points in northern and western Ontario from Lake Temagami to Rainy Lake, and it may be hoped will prove to be associated with iron ore deposits of importance at other points than the Helen mine. It is probable that the Mattawin iron range belongs to the same series of rocks. A point of great geological interest is found in the presence of sandstone pebbles from this series in many conglomerates of the Huronian formation, proving that a great break exists between the lower and the upper Huronian, a fact never before clearly recognized by Canadian geologists.

IRON ORE BY RAIL.

The shipment of ore from Ashland, Wis., to Chicago during the navigable season, although 200,000 tons in advance of any other season, have proven quite insufficient to supply the demand, for the C. & N. W. people have commenced shipping ore by rail directly from the Gogebic range to the Illinois Steel Co's plant at South Chicago.

Supt. Tarbox stated that his road would ship 200,000 tons of Norway ore to Chicago and several other places of lesser importance, by rail. "This," said Mr. Tarbox, "is the first time since 1890 that any such a revival has been struck and at the rate it is now speeding bids fair to eclipse all other years. This feature of rail shipments is certainly amazing considering what has been shipped during the summer months.

"The mines on the Gogebic range are all working and throwing up stock piles, the size of which have never before been seen in the vicinity of the range and which of course proclaim a much larger ore business for next season."

HISTORIC OLD CRAFT.

Secretary Long has addressed letters to Senator Hale and Representative Boutelle, who look after naval legislation in the Senate and House, relative to the plan of refitting the historic old craft "Constitution" as a naval training ship. The Massachusetts State Society of the Daughters of 1812 propose to pay for the refitting through popular subscription, and Secretary Long refers to this as a worthy purpose inspired by patriotic impulse. At the request of Mr. Hale, the Secretary has drafted a bill to cover the plan, providing: "That the Secretary of the Navy is hereby authorized to cause the United States frigate "Constitution" to be repaired at the navy yards, Boston, and restored to a serviceable condition, in order that she may again be placed in commission and used as a training ship, or otherwise, the expenses of such repairs to be paid from funds raised by popular subscription under the auspices of the Massachusetts State Society, United States Daughters of 1812. Provided, that such repairs and restoration shall be made under the supervision and control of the Navy Department, and shall not be undertaken until an amount sufficient to defray the cost thereon shall have been subscribed, and guaranteed by the said society."

RIVER AND HARBOR WORK.

If Congress fails to pass the bill providing for the appropriation for rivers and harbors the port of Cleveland will not suffer the coming year, although some of the other ports in the district may find themselves greatly hampered.

In speaking of the contingency Colonel Jared A. Smith, engineer of rivers and harbors, Cleveland, said that there is still in the fund for harbor work from former appropriations something like $400,000 for breakwater work and about $30,000 for dredging. The money for dredging, he said, would allow the contractors to do about three-fourths as much work next year as they have done this. At the rate for which they have recently made contracts he says this amount will allow them to take out of the Cleveland harbor about 200,000 cubic yards of earth. With the $400,000 that remains in the fund to the credit of the breakwaters he says they could complete the 1,000 feet of work already started on the west breakwater, and do fully as much new work on the east arm of the breakwater next year as they have done this year.

As far as the dredging goes, he says the money on hand will allow them to clear out the river, getting rid of the old pier, and making the channel there universally twenty-one feet.

There are a few ports that are not in as good condition as Cleveland, These are Toledo, Ashtabula, Sandusky and Lorain. Practically no work can be done there without an appropriation. Ashtabula was put on the continuous contract plan at the last sitting of Congress, and some of the work to be done there is an outstanding obligation of the government which must be cared for.

A SHIPPERS' UNION CLAIMED.

As a result of the wholesale increase in freight rates by the eastern railroads, regardless of the value of merchandise or volume of traffic, a movement has been started by mercantile interests of Chicago to form throughout the country local and state associations of shippers to secure protection against arbitrary action of the railroads.

A circular issued by the promoters of the plan declares that "to remedy evils of present railroad adminstration state legislation must be secured and Congress urged to increase the power of the Interstate Commerce Commission, especially to enable it to regulate maximum and minimum freight rates."

The threat of the Santa Fe, Rock Island and other Western roads to divert grain and provision traffic to the gulf ports if the eastern roads refused to pro-rate on shipments to the Atlantic coast, making the through rate higher via Chicago than via St. Louis, has induced the eastern roads to announce that they will not change the present plan of making through rate on January 1st, but on February 1st. In other words, the eastern roads have found out that they cannot discriminate against Chicago and are anxious to rectify their mistake before it costs them a lot of money.

THAT CONNERS MONTREAL CONTRACT.

A special dispatch to the Commercial from New York quotes President Hill, of the Great Northern railroad, as saying regarding the Conners contract, recently signed in Montreal: "That agreement will kill Buffalo as a commercial centre and prove disastrous to the same interests at New York, Boston, Newport News, Baltimore, Galveston, and Portland. The diversion has begun and cannot be checked. There is no remedy that I can discover at this time, because a point have been reached when the men who have carried this scheme through have stolen a march on the interests that have been concentrated so long at the lakes and seaboard, and have felt too secure in their long-time prestige."

PORT HURON.

Special Correspondence to The Marine Record.

The barge Favorite has received a new fore and main mast.

Repairs to the Lake Huron lightship will be made at Oades' shipyard.

All of the boats belonging to the Jenks Ship Building Co. are safe in port. They have experienced a good season.

Four steam barges have gone into winter quarters at the F. & P. M. dock and the Grand Trunk elevator dock in St. Clair river.

The steamers J. B. Lyon, Columbia, and City of Rome, stopped here Saturday evening waiting for the weather to clear up.

The steamer Black Rock has gone into winter quarters near the Sarnia elevator. The boat is loaded with oats, but will not unload until spring.

The following vessels are laid up in Smith & Son's ship yard: Steamers, Simon Langell, St. Paul and Italia; barges, W. K. Moore, Iron Age, Interlaken, Abram Smith, Voges and Halloran.

Vessel Inspectors Stewart and Van Liew have completed their labors for the year. The number of vessels inspected in the district during the past summer was less than the previous year.

Capt. Thomas Wilson, manager of the Wilson Transit line, Cleveland, and others, have purchased both of the boats now being built by the Jenks Ship Building Co. As soon as the smaller boat is completed work on the new boat will begin.

The work on the new steel boat building at the Jenks' Steel Ship Building Co.'s yard is rushed, they could work more men, but men are scarce, as the woods are paying good wages, and there is lots of work all over this section of the country.

Capt. W. E. Rice, custodian of the harbor of refuge at Harbor Beach, spent a few hours in the city this week. Capt. Rice says that navigation is at an end and he expects to have but very little to do from now until the opening of navigation next spring.

The steamer Point Abino, which went ashore on Ballast Island, Lake Erie, a week ago, has been abandoned, as it has been found impossible to release her. The cargo has been saved. The Point Abino is owned by Nelson Mills, is worth about $6,000 and is uninsured.

Ransom Holland says there has been considerable talk over the question of keeping the mouth of the canal open, if one is built from Lake Hnron to Black river, and that some people have even gone so far as to say that it cannot be done. Mr. Holland wants it understood that he will take the contract to keep the mouth of the canal open the year around for $500.

A very strange coincidence is recalled by the death of Capt. Van Renssalaer, of Marine City. Last spring Capt. Van Renssalaer and Edward Crowley started out as captain and mate of the barge Nasmyth, both apparently in the pink of good health. In September Edward Crowley died, and on Thursday last John Van Renssalaer passed away, thus showing the uncertainty of life, with all its plans, its pleasures and changes.

On Thursday Wm. Bonnah caused the arrest of John Monroe, of East Jordan, Charlevoix county, on a capias. Bonnah asks for $10,000 damages, alleging false imprisonment at the hands of Monroe. In his declaration filed in the Circuit Court, Bonnah sets forth that Monroe caused his arrest on two different occasions, claiming embezzlement of $981.54. A motion was made in the Circuit Court to have the writ quashed on the ground that Monroe's arrest was illegal on account of his having been enticed here to have the writ served on him. The motion will come up for hearing some day next week. The defendant was finally liberated, Capts. S. L. and A. B. Slyfield going on his bond.

Chief of Police Petit arrested William Carnahan on Thursday night last. Carnahan was at a junk shop trying to sell a new tow line which had been cut into short lengths. The prisoner has been acting as ship-keeper on the schooner Donaldson, and an investigation revealed the fact that the boat had been stripped of nearly all of her tow lines besides a quantity of other articles. Chief Petit visited the junk shops at Sarnia, and says that Carnahan has sold five or six loads of junk taken from different boats in the bay. Capt. Dan Petzer, of the Donalson, arrived in this city, and will make the complaint against Carnahan. The owners of the other boats in the bay have also been notified to look their boats over and see what is missing. At a rough estimate the police think that Carnahan has stolen over $400 worth of junk, etc. Carnahan told Louis Lavigne on Thursday when he tried to sell him the new line it was too short to take a boat through the lock at the "Soo." The line was originally over 100 fathoms long. Carnahan is known to the police.

BUFFALO.

Special Correspondence to The Marine Record.

Next Thursday evening a meeting will be held by Harbor No. 41, Masters' and Pilots' Association, when candidates for the ensuing year will be nominated. The election will be held next week Thursday.

A special number of the Official Gazette, pnblished at Ottawa, has been issued with a copy of an order in council approving the contract entered into by the Connor's syndicate, of Buffalo, N. Y., with the harbor commissioners for the building of elevators at Montreal. The contract is for forty years, with the privilege of renewing same.

The amount of coal shipped for the season of 1899, custom house figures is, 2,815,165 tons, which has been exceeded during the decade only in the season of 1892 and but little then, as the following figures will show: In 1898 the amount was 2,455,181 tons; in 1897, 2,234,329 tons; in 1896, 2,400,068 tons; in 1895, 2,620,728 tons; in 1894, 2,485,455 tons; in 1893, 2,703,673 tons; in 1892, 2,852,370 tons; in 1891, 2,365,895 tons; in 1890, 2,044,134 tons.

Another meeting was held by the harbor tug pilots and tug engineers of this port and Tonawanda this week for the purpose of forming a permanent organization of all licensed tugmen with a view to mutual protection. It is said that the matter has been thoroughty discussed in two previous meetings held last week. It is probable that a committee will be appointed to confer with similar committees at upper lake ports and that within a short time a national licensed tugmen's protective association will be organized.

The difference in actual earnings of the lake fleet this season from that of last year can hardly be told better than by reference to the rates on coal. As figured by Brown & Co., of this port, who handles a majority of the tonnage, it is found that Chicago cargoes in 1898 paid an average of 30 4-5 cents a ton and that during the past season the rate was 77 cents. This is actual, being obtained by dividing the freight money by the amount of coal carried during the season. The Milwaukee rate was 27 1-5 cents in 1898 and 76 cents in 1899, as less was carried on the high rates this season to that port than to Chicago, the running rate from day to day being practically the same. The Duluth rate was 24 3-5 cents in 1898 and 48 3-10 cents in 1899, a substantial doubling of the last year's rate in each case. It is an even bigger showing for the season just closed than was expected.

Charles H. Keep, secretary of the Lake Carriers' Association, was seen by a reporter for the Buffalo Express in regard to the grain contract. Mr. Keep said he had been corresponding with the Lake Carriers relative to a meeting to be held some time before the annual session of the Lake Carriers' Association, which is to be held at the Cadillac hotel in Detroit, on Jan. 17. The meeting for which arrangements are now being made will be between the elevator men and the vessel owners, and probably will decide the course to be pursued by the Lake Carriers' Association in regard to the contract. "The vesselmen and the elevator men are interested in this matter, too," said Secretary Keep, "and will hold a meeting some time between now and the annual session of the Lake Carriers' Association. I cannot say where the meeting will be held, nor can I say along what line the vesselmen and elevatormen will act."

The local firm of Hingston & Son, of this city, will take a large contract to Jacksonville, Fla., this winter. A short time ago Hughes Bros. & Bangs were awarded the contract by the government to do dredging along the Atlantic coast, and it was found necessary to have a large fleet of scows and a number of dredges built to facilitate the work. The contract from the government included the dredging of Gowanus Bay, New York harbor, and at this place the scows and dredges to be built by Hingston & Son will be used next spring and summer. The contract for building this fleet of ten scows and two dredges involves an expenditure of fully $500,000, the former to cost $25,000 each and the latter $125,000 each. Work will be begun next week. Each of the two dredges to be built will be 135 feet long, 50 feet wide and 15 feet deep, and each of the ten scows will be 200 feet long, 40 feet wide and 15 feet deep. The scows will be capable of holding 1,600 yards of gravel or mud. They will each have twelve pockets, and will be constructed of Georgia pine. The dredges, it is said, will be the largest in use in the United States. Either one will be able to hold the great dredge Pan-American, recently constructed, inside of their hulls. The machinery for operating the scows and dredges, being built in Albany by the Osgood Dredge Co., will be put on the boats as soon as they can be towed to New York. W. J. Hingston, of Hingston & Son, will leave for Florida next Saturday, to personally superintend the work of building the boats, and the Messrs. Hughes have already departed for the south to look after the material. Although a number of shipwrights, carpenters, calkers and others will leave here for Jacksonville to work on the contract, it would have been a great advantage to labor if the fleet could have been built here.

CAPT. J. G. WARREN, engineer of the ninth lighthouse district, has given notice that vacancies exist in the list of eligibles for the position of superintendent of the lighthouse service in that district. One position will require a machinist who understands the construction and repair of machinery and boilers. The other positions will require a general knowledge of building, construction, qualities of material and ability to handle working force. Persons wishing to apply for the position may obtain blank forms of application from Capt. J. G. Marren, whose office is at the custom house, Milwaukee, Wis.

CLEVELAND.

Special Correspondence to the Marine Record:

H. D. Root, Lorain, is building a 60 foot tug for the Ranney Fish Co.

The total iron ore shipped by lake this season is placed at 17,901,358 gross tons, with rail shipments added the season output will exceed 18,500,000 tons being 4½ million tons beyond last season's shipments. It is calculated that 20,000,000 tons will be required next season.

Ex-Congressman W. J. White will take his handsome steam yacht "Say When" to the coast next spring. Since the amalgamation of the several large chewing gum firms, Mr. White has taken up his residence in New York City and now only pays an occasional visit to Cleveland.

Two Harbors leads the list of iron ore shipping ports this season with a total of 3,973,733 tons, leading Escanaba, the greatest iron ore shipping port in the world, for the first time. Duluth was a close third in the nearly 18,000,000 tons of ore shipped by lake during the season just closed.

Capt. Barry, of Chicago, purchased the schooner Sophia Minch ashore near Ashtabula After several determined but unsuccessful efforts to float the craft the contract was turned over to Capt. James Reed of Detroit, who has been superintending wrecking operations on the stranded schooner for the past month. He has now suspended work and given up floating the boat before next spring. The Minch went ashore July 8 last and several thousand dollars have been spent in attempting to release her.

Taking advantage of Congressman T. E. Burton being in the city, some of the vesselmen met with the maritime board of the Chamber of Commerce and conferred with Mr. Burton in regard to general improvements throughout the lake system. The fact that two vessels recently grounded in the St. Mary's river will cause the improvement of this river to take a prominent place in the conference. Suggestions have been made to widen and deepen the channels in this river or to form a duplicate channel so that the vessels may not ground there and stop all movements either way in the river.

Col. Jared A. Smith, Corps of Engineers, U. S. A., in charge of the river and harbor improvements in this district, returned recently from a visit to Port Clinton, he says that everything is ready for the removal of the schooner Onward, which went down in that harbor during the summer. The proposals of the engineer have been submitted to the bidders, and they will have their bids in the office of the engineer of rivers and harbors by January 12. It is not expected that the work of removing the schooner will be started upon now before the early opening of the next season of navigation.

The whaleback barge No. 115, which was generally given up for lost on Lake Superior last week, has been found ashore on Pic Island, Ont., north shore of Lake Superior. After stranding, her crew managed to get ashore and reached here this week. The cook had his feet frost-bitten, otherwise the men pulled through their great hardship in fairly good style. An expedition is now after the barge to learn whether she is in a fit state to be towed into port. The greatest credit is due Messrs. Pickands, Mather & Co. (the Minnesota Steamship Co.), for their unceasing efforts to find the castaway vessel and her crew, as well as their great kindness and liberality to the men after they turned up all right.

The metal disc weather signals invented by Rev. Frederick Odenbach, of St. Ignatius college, have proved to be a big success. Rev. Odenbach believes it would be a good thing if the Government would adopt them and do away with flags. Rev. Mr. Odenbach said, Tuesday: "The discs have been in use in the college here for nearly a year. They are about 18 inches in diameter and are painted chrome yellow and black. They are not expensive, last a long time and can easily be cleaned. The flags are expensive, and after being displayed for a short time in Cleveland's atmosphere are all about of the same color." Another advantage claimed for the discs is that they can be seen farther thau the flags, and the simple code in use can be more easily read than the flag code.

The following data, covering a period of twenty-nine years, have been compiled from the Weather Bureau records at Cleveland, Ohio. Month, January: Temperature—Mean or normal temperature, 27°. The warmest month was that of 1880, with an average of 40°. The coldest month was that of 1875, with an average of 17°. The highest temperature was 70° on January 22, 1874. The lowest temperature was 17° on January 29, 1873. The greatest amount of snowfall recorded in any 24 consecutive hours (record extending to winter of 1884-85 only) was 6.0 inches on January 9, 1886. Clouds and weather—Average number of clear days, 3; partly cloudy days, 9; cloudy days, 19. Wind—The prevailing winds have been from the southwest. The highest velocity of the wind was 58 miles, from the southwest, on January 14, 1899.

Ex-Mayor George Gardner and Commodore of the Cleveland Yacht Club, still believes in a reformatory or training ship for youths. A pertinent argument advanced by Mr. Gardner is that all boys like an active outdoor life, and the school ship would supply them with plenty of opportunities for working off their surplus energy, and there would be no lack of open air exercise. At the same time the school would furnish a sound practical education, enabling them to perform all their duties intelligently, preparing them for filling higher positions in marine or naval life, and providing a foundation for further training in any other line of em-

ployment. The City of New York provides the school ship St. Mary and it is one of the most beneficial institutions in the country. The only one way to secure this reformatory or school ship is to make it a municipal institution or to have it supported by voluntary contributions. It is said that there are today in the city of Cleveland, as in other cities along the lake shore, numbers of boys, who, through lack of proper training, are growing up in danger of being of little use to themselves or others, and who are not unlikely to become a menace to the commnnity. They are not all, or even many of them, inately vicious, but are the victims of their environment. Unless brought in time under proper influences they are most likely to drift into lawnessness, and from that to serious crimes, whereas if they are taken in hand when young they can be turned in the direction of orderliness and usefulness. Let Cleveland show what can be done in this direction and then the other principal lake ports will no doubt follow suit in properly taking care of their neglected youths.

DETROIT.

Special Correspondence to The Marine Record.

The steamer Minnesota has been placed in the Orleans street dock of the Detroit Ship Building Co. to have her boilers changed. She followed the Forest City, which was removed from the dock yesterday, after receiving a general overhauling.

Mr. William Livingstone, chairman of the Lake Carriers' Banquet Committee, assured the members of the association when he was appointed Wednesday night that the banquet next year will lay decks over anything of the kind ever given in Detroit. In connection with the banquet there will be an entertainment. Mr. Livingstone has already secured the Newman brothers, who are among the leading entertainers in the country. It is generally and particularly known that Mr. Livingstone is the prince of entertainers, and it seems as if he devotes at least half of his time in giving pleasure to others. There is no marine man in Chicago, Cleveland or Buffalo that, as far as acting the host is concerned, could hold a candle to Mr. Livingstone.

The annual ball to be given by the Shipmasters' Association in the Masonic Temple on January 17, promises to be one of the most successful social events yet attempted by the association. Capt. M. J. McIntosh, Capt. Alex. J. McKay, Capt. Charles L. Wilson, Capt. William Roach and Capt. David Wilson are chairmen of the several committees, and each of the resident members has elected himself a committee of one to help make the affair a success. At the annual meeting of the association held in their club rooms at 12 Woodward avenue, yesterday, the following officers were re-elected as follows: A. J. McKay, president, for the fifth consecutive term; William Roach, first vice president; James Watts, second vice president; Hiram Still, treasurer; William H. Hoffman, secretary; Chas. M. McIntosh, chaplain; James Beauvais, marshal; William McLane, warden; George C. Burns, sentinel; D. Wilson, trustee for three years; A. J. McKay, delegate to grand lodge; Wm. Roach, alternate.

There will be no ceremony over the launching of the steamer Tashmoo at the Wyandotte yards of the American Ship Building Co., on Saturday next. The hull will slide into the water and then be towed to the Orleans street dock, where the engines and machinery will be placed in position. These are now waiting the arrival of the hull and when they are placed the carpenters and finishers will begin work on the upper portions of the boat. The power for the new boat will be supplied by the largest triple expansion engine in use on the lakes and steam will be generated by seven Scotch type boilers, at a pressure of about 170 pounds. These boilers are of a new design and have 11-foot shells. The high pressure cylinder is 33 inches, the intermediate 51 inches and the low pressure 82 inches. The engines will have a 6 foot stroke and will furnish power to the paddle shaft direct, thus doing away with a walking beam. The paddle wheels are of a new design, with nine buckets to the wheel, each 48 inches by 12 feet 6 inches. The wheel frames are 24 feet from center line to the pinion holes of the paddles and the new construction is said to insure against accidents to the buckets from contact with river banks.

The D. & C. Navigation Co. is a well-established, good paying line of passenger and cargo steamers, chiefly passenger, but all freight is accepted. The C. & B. line connects daily with the D. & C. east and west throughout the season, and the latter line has also a Lake Huron service calling at way points between Detroit and Mackinac. Now comes along the old story from Cleveland that the D. & C. are to have worthy and equal competition. Mr. Carter, general manager of the D. & C. line, when asked regarding this rumor of another Lake Erie line being started said: "I have given the matter but little thought. If we have opposition we are capable of meeting it far more than half way for a season or two, which would be quite sufficient to decide the fate of the other line. If the lake was full of good steamers for sale I might think there was some possibility of truth in the story, but under the circumstances we have paid no attention to it. Every time the marine reporters get short of gossip they start an opposition line to the D. & C., but it causes us no worry. I do not believe the business men of Cleveland would organize a company in opposition to our line. They are too good business men for that. Our line can make money, but with the patronage divided both lines would lose, and it would be a case of the survival of the fittest. With our business standing in both cities, and with our additional lines to keep up the revenue, there would be no question of the outcome."

CHICAGO.

Special Correspondence to The Marine Record.

Capt. P. Griffin has had the steamer Chas. Stewart Parnell loaded with wheat for winter storage at 3½ cents per bushel.

Capt. O. E. Hogebaum has sold the steamer Two Henrys to Capt. R. Frinck for $3,600, and he has purchased the schooner H. C. Winslow from Capt. Myles Barry for a like amount.

At Miller Brothers' shipyard the steamer Ionia is on dock for a survey, the steamer Gladstone for bottom calking, the steamer R. A. Packer for calking, new rudder casing and repairs to stern bearing.

The Spring Lake Ice Co's ice house at Spring Lake, Mich., was destroyed by fire on Monday. The building was 200 x 600 feet and was built at a cost of $50,000. It contained about 60,000 tons of last winter's ice. The building was insured.

The Dunham Tug Co. have the tugs T. T. Morford, Perfection, O. B. Green and J. C. Evans in commission for winter services. The tugs Morford and Perfection leave here Wednesday for Milwaukee to tow the barges Iron Cliff and Ewing to this port.

Capt. Peter Barry's tugs, Robert E. Burke, Alpha and John Torrent, will commence January 1st to carry out the city contract to keep the waterworks cribs free from ice during the coming winter months. $365 per month is to be paid for each boat's services, and $6 per hour for any extra tugs which may be required to render assistance.

The steamers Elphicke and Cumberland, of the Gilchrist fleet, arrived at Milwaukee with coal from Lake Erie on Christmas day. The Lyons and City of Rome arrived later. This is mid-winter navigation, but it is paying all right at $1.50 per ton on the cargo. The Gilchrist fleet are uninsured, and they are not of the big, powerful, 8,000-ton class of modern steel steamers either. Mr. J. C. Gilchrist is the champion of the season in handling his fleet this year and easily puts older and more experienced vessel owners and managers in the shade regarding good judgment and money making.

The steamer M. F. Butters, Capt. Robert Reid, made 50 round trips between April 18th and December 24th, 47 to Menominee, 2 to Lake Superior and 1 to Alpena, a distance of more than 23,000 miles. The steamer has traveled 142,000 miles during the past six seasons without ever having been delayed for repairs to her engine. Taking into consideration the amount of backing, stopping and going ahead, which the steamer is subjected to when going in and out of port, it reflects great credit upon chief engineer Wayne Coates who has been engineer with Capt. Reid during the past 17 seasons.

DULUTH—SUPERIOR.

Special Correspondence to The Marine Record.

In the proposed readjustment of the Lake Superior port districts, the Evening Telegram, Superior, says that a very logical scheme would be to include all of the Lake Superior ports in Wisconsin port districts and the Mississippi river port districts in Wisconsin in the district of Superior with Superior as the port entry, and all Lake Michigan ports in the district of Milwaukee with Milwaukee as the port of entry. This arrangement is based on the conditions of today. The present arrangement is based on the conditions which existed in 1872—nearly a generation ago.

The annual report of Deputy Port Collector Thomas B. Mills for the subport of Superior for the year 1899 shows that the number of arrivals and clearances during the last year were 2,981, the tonnage of the vessels arriving and clearing to be 4,583,696, the total receipts and shipments in tons was 4,837,812, and the total value of receipts and shipments $82,275,323. These figures will rank Superior with the first 10 shipping ports of the United States. Superior is a sub-port to the port of Marquette. If the showing made by the Superior sub-port this year does not secure recognition from Washington and a readjustment of the port districts of Lake Superior, then it is hard to tell what argument would prevail.

The Union Towing and Wrecking Co. of Duluth, which is the local organization of the Great Lakes Towing Co., will have a permanent home in a new location by the opening of navigation. The present location, which is at the same place so long occupied by the old Inman Tug Co., will be given up to the Northern Pacific road. The new location will probably be nearer the ship canal. The tug company will make some important improvements when it finally procures property on which to place its buildings. These will consist of the offices, a repair shop and storerooms. The repair shops will be equipped in such a manner that all ordinary repairs can be made to the tugs whenever necessary. This will do away with delays and be more satisfactory as well as cheaper in every way. Supplies for the tug fleet will be bought in bulk and put in the storerooms, to be drawn on as needed.

If lumber was scarce this fall it is likely to be scarcer next season, the soft weather has made it certain that lumbermen will be unable to get out all the timber already contracted for, to say nothing of a surplus for general stock and later ordering. When the fall started in and for some time previous contracts were being made every day for big cuts to be made the coming winter, and even with the most favorable weather it would have taxed the resources of the loggers to have taken out all the timber that they were under contract to get out. The mills at Superior and Duluth, as well as other places in the northwest, last summer sawed up about all the timber there was in sight. There is usually a reserve left over each fall, but this year there was none and the lumbermen figured on making up for that by a very big cut this winter. Now that the weather has failed them and there is no reserve in stock, it is beginning to puzzle them to know how they will keep the mills busy all next summer. The chances are now that logging in real earnest cannot start before the first of the year, no matter what the weather, which means that with most of the camps the middle mark of the season will have been reached with practically nothing accomplished by them. Many loggers who a year ago had hauled thousands of feet of timber to the roads have as yet done nothing except fell trees.

MORE SHIPBUILDING FOR LAKE COMMERCE.

At a meeting of the Montreal Harbor Commissioners held on Tuesday it was announced that the government had approved the by-law granting the Conners syndicate the privilege of erecting elevators at that port.

Mr. G. T. Smith, the secretary of the syndicate, said that the promoters are occupied with the preliminary arrangements, and the work of construction will be commenced as soon as possible. The contract which has been entered into with Messrs. Swan and Hunter, England, is for the construction of four vessels which will form part of the canal fleet that will run between Port Colbourne and Montreal. Other steamers and barges of the same type will be constructed by the Bertram Ship Building and Engine Works, at Toronto. The steamers will be 245 feet in length and 80 feet in width, each capable of carrying 80,000 bushels of grain. Attached to each steamer making the passage through the canals will be two large barges, with accommodation sufficient to carry the same quantity of grain.

The large steamers carrying grain between the lake ports have an average carrying capacity of 200,000 bushels, so that each steamer with its two barges will have capacity to carry the full load of one of the largest lake steamers bringing the grain to Port Colbourne and shipping it to Montreal.

The syndicate propose to constuct the large elevator at Port Colbourne for trans-shipment purposes. It is not expected that they will be able to divert any considerable amount of traffic from the lines of steamships running in connection with the great railway systems operating between Buffalo and New York, but it is expected that they will bring to the Montreal route the bulk of the grain that is now gathered in the Mississippi river states and shipped by way of Galveston, and other Gulf ports, to Great Britain. For the lake transport of this grain, which their agents will collect, they intend to utilize the services of a specially adapted lake fleet. They believe that the advantages offered by the Canadian canal system and the port of Montreal, both as regards economy and efficiency, will permanently attract the services of a large lake fleet. In the same way they anticipate no difficulty in inducing large ocean steamers to charter for Montreal. They will, it is believed, be in a position to open up sufficient new traffic between Great Britain and the interior of this continent as will insure a sufficient supply of tonnage. The trouble in the past has been to get steamers to enter the St. Lawrence for the grain traffie alone, which only gives them a cargo one way. By opening up a now merchandise traffic direct between the London and Liverpool shippers and the lake ports, this difficulty would be overcome.

IRON ORE PRODUCTION

Prospecting has been and is being carried on to find new iron ore deposits in the Lake Superior region.

In an article on this subject Iron Ore says: "The present drain is a great one. Twenty millions of tons will be needed in the year to come, and it is only reasonable to assume that even this large amount will be inadequate in a few years to come. We well remember the time when the entire Lake Superior region contributed only one million tons. There are mines yet to be found. The Marquette range has tracts of land upon which only little has been done, and much has been looked over in a hap-hazard way. To the west of Ishpeming there is a chance for the finding of new mines. In the vicinity of Negaunee there may be new deposits added to the present number, but additions in the past 10 years have been few. The Menominee and Gogebic ranges have been fairly well explored and the Minnesota fields are showing little in the way of recent discoveries. All of these millions make sad-looking holes in the mines and the present reserve looks none too large in the light of shipping performances. It is not a difficult matter to estimate the probable tonnage of ore upon the older ranges or in the Vermilion range of the Minnesota field. New districts are being locked for in our own country as well as in Canada, the idea that there may be a shortage having grown considerable of late.

THE French legislature is considering a measure to modify the shipping bounty law of 1893 by the creation of an outfit bounty as an alternative to the navigational premium and the bringing of the bounty for steamers into line with that for sailing vessels. The increased bounty is to be allowed only on ships constructed of iron or steel. The conditions are that the ships are to be of French build and that when they are fifteen years of age they shall cease to draw the premium. The outfit bounty will be paid for twenty years from the launching of the steamer. The owner is at liberty to choose which ever bounty he anticipates will prove most beneficial to him. The bill, it is said, is certain to be passed.

THE CHICAGO DRAINAGE CANAL.

J. H. Darling, of the United States Engineering Department of Duluth says that the Chicago drainage canal will undoubtedly be more or less a menace to navigation on the lower lakes by reducing the levels, but he says that many of the published estimates of the probable reduction of the lake levels are undoubtedly greatly overestimated. For example, a dispatch from Washington says that the lake levels will drop a foot. Mr. Darling is of the opinion that the levels of Huron and Michigan will be reduced between 3 and 6 inches, and that the effect on Erie will be less than on either of the first two mentioned bodies of water. Mr. Darling says that a great deal of nonsense is being published about the damage that will result from the Chicago drainage canal. He considers it an important matter but is satisfied that the effects of the big ditch will not be as damaging to commecial interests or to the outflow of the Niagara river, as many writers on the subject would have their readers believe.

The flowage of the drainage canal is estimated at 5,000 cubic feet a second. As compared with this the discharge from Lake Huron is about 225,000 cubic feet a second, and over Niagara 250,000 cubic feet a second. Looking at the subject from this standpoint the drainage canal appears to be a small factor. Mr. Darling, however, considers the loss of water through the drainage canal of sufficient importance to commerce to require careful attention. The proposed damming of the water at the foot of Lake Erie would, it is thought, provide sufficient storage of water to raise the levels of all important points on the commercial routes and overcome the loss through the drainage canal.

It is supposed that Chicago had intended to steal a march on Congress in the matter of opening the drainage canal. It was intended to get the water turned in before that body had assembled. There seems also to be some doubt as to whether the drainage canal will draw off only 5,000 feet a second or considerably more. Even after the canal is in full operation it will take a year or two to establish exactly how much the lake levels will be decreased. Some experts say that the drainage canal, providing the discharge is not greater than 5,000 feet a second, will not decrease the lake levels in any important degree.

Duluth seems to be interested in the Chicago drainage canal to this extent. It will probably lower the average stage of water at Lime Kiln Crossing, which is now the gauge for vessel draft for lower lake boats in the Lake Superior trade. St. Mary's river formerly fixed the draft but now the draft to which boats plying between Lake Erie and Michigan and the upper lake must load is fixed by the Lime Kiln Crossing. The level of Lake Superior will not be affected even if Lake Michigan and Huron and Erie should shrink to the size of mill ponds.

EASTERN FREIGHTS.

Messrs. Funch, Edye & Co., New York, in their usual weekly freight report to the RECORD, states as follows:

The usual holliday dullness intervening, freights for steamers have failed to secure any improvements; berth rates for liners, as a matter of fact, have followed a steadily declining tendency, which has in turn weakened the rates obtainable for full cargoes. The general freight market during the week under review has been dull and unsatisfactory in consequence, and whilst adhering to our belief that a turn for the better for freights cannot now be long deferred, we do not look forward for such until after the turn of the year.

Sail tonnage has not shown any animation during the past week, and the few charters reported have been almost exclusively for lumber to the river Plate at about former figures. In case oil for the East there is no change, only one charter having been effected to Japan at 25 cents. The enquiry in this line continues good, although shippers will not advance their offers, whilst owners continue equally firm. Naval stores have likewise ruled quiet at former rates, and the enquiry is not very brisk as we approach the close of the year.

COLLECTOR L. M WILLCUTS, of the port of Duluth, imposed a fine of $300 on the steamer North Star, upon the report of Capt. A. B. Davis, in charge of the navigation of St. Mary's river. The fine is imposed because of the failure of the North Star to observe the navigation rules of the river, resulting, it is alleged, in the grounding of the steamer Siemens. The answer of the steamer to the charge against her has not been made public.

TONAWANDA'S BUSINESS.

Tonawanda's lumber business for the season of 1899 has been a remarkable one, as is shown by the following statistics:

The total lumber receipts for the year 1899 are 541,576,959 feet. The increase of the receipts of this year over those of last year if 62,510,823 feet. The total amount of lumber shipped from the Tonawanda ports this year also shows an increase of between 10,000,000 and 50,000,000 feet over that of 1898. The tremendous increase in the shipment of pig iron from the Tonawanda iron and steel works this year is still more noticeable. Less than 1,000,000 pounds were shipped in 1898, while this year nearly 42,000,000 pounds of the same material were forwarded.

The customs collector's report for the season of 1899 is as follows:

Lumber, 357,667,400 feet; shingles, 9,490,150 pieces; lath, 1,679,350 pieces; railroad ties, 63,570 pieces; posts, 38,239 pieces; telegraph poles, 1,593 pieces; iron ore, 1,979 tons; stone, 6,449 tons. The number of coastwise vessels entered, 736; tonnage, 420,262 tons. The number of foreign vessels entered, 94; tonnage, 29,418 tons.

LAKE SUPERIOR CASUALTIES.

Capt. Frank Henrich, the nautical expert in charge of the hydrographic station at Duluth, has prepared his report of wrecks and casualties in his district for 1899. The Duluth hydrographic district takes in all that part of Lake Superior west of Grand Marais, Mich., on the south shore, and Otter Cove on the north shore. In other words, the district embraces all that part of Lake Superior west of the 86th meridian. Capt. Henrich's report is as follows:

July 29.—Tug Bob Anderson caught fire, was beached near Grand Marais; wreck abandoned.

August 10.—Canadian steamer Ontario stranded in fog, east of Battle Island; abandoned.

August 19.—Steamer Penobscot stranded during foggy weather, on Knife Island; released and repaired at Duluth.

September 7.—Steamer Peerless sunk on west side of Rice's Point, in collision; raised and repaired.

September 27.—Steamer Harlem, released from rocks near Menagerie Island.

October 8.—Tug Record sunk in Rice's Point channel by steamer Neilson; raised and repaired.

October 23.—Schooner Chris. Grover stranded near Split Rock; abandoned.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	3,488,000	517,000	487,000	175,000	1,473,000
Chicago	16,656,000	2,763,000	1,348,000	295,000	69,000
Detroit	721,000	237,000	115,000	19,000	97,000
Duluth	6,615,000	80,000	182,000	242,000	106,000
Fort William, Ont.	2,555,000	.....	.....	.....	.....
Milwaukee	194,000	1,000	.....	24,000	1,000
Port Arthur, Ont.	215,000	.....	.....	.....	.....
Toledo	1,367,000	819,000	404,000	7,000	.....
Toronto	51,000	.....	4,000	.....	67,000
On Canal	.....	.....	.....	.....	.....
On Lakes	.....	.....	.....	.....	.....
Grand Total	58,878,000	12,361,000	5,473,000	1,339,000	2,642,000
Corresponding Date, 1898	28,783,000	18,700,000	5,949,000	1,311,000	4,144,000
Increase	1,725,000	776,000	910,000	.....	.....
Decrease	.....	.....	.....	83,000	249,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 9TH DIST.,
CHICAGO, Ill., Dec. 23, 1899.

LIGHTS CLOSED FOR THE WINTER.

Notice is hereby given that the McGulpin Point, Michigan, light-station, and the Tail Point, Wisconsin, light and fog-bell station, have closed for the winter.

By order of the Light-House Board,
F. M. SYMONDS, Commander U. S. Navy,
Inspector Ninth Light-House District.

LIGHTS CLOSED FOR THE WINTER.—Notice is hereby given that the St. Helena, Beaver Island, South Fox Island, Grand Traverse light-stations, Michigan, and the Bailey's Harbor, Wisconsin, light-station, have closed for the winter.

By order of the Light-House Board.
F. M. SYMONDS, Commander, U. S. N.
Inspector 9th L. H. District.

PASS THE SHIPPING BILL.

President McKinley regards the shipping bill which has been presented in Congress as important a measure as any legislation which will come before our Senators and Representatives this session. Like Senator Frye, he is said to be very enthusiastic on the subject of an American merchant marine and the prospects for the early passage of the measure are very bright.

The National Republican League of Clubs, at its meeting in Washington last week, adopted resolutions which read in part that "The business interests of the nation would be vastly benefited and demand the early restoration of our merchant marine to its former position on the seas of the world; it is the sense of this league that prompt action should be taken by the present Congress to enact such laws as will encourage and build up the merchant marine in proportions adequate to insure the carrying of American products in American bottoms and at the same time reinforce the navy of the nation, and, further, that the members of this committee should not object to the use of their personal influence in that direction."

Senator Frye puts the matter tersely when he says:

"The New York Produce Exchange, in a report a few years ago, stated that out of 19,000 ships that sailed from New York to Great Britain laden with our wheat and flour, only four of them were American. It is a shame and a humiliation. I had a very careful estimate made as to the tons our exports and imports amounted to in a year, and the best estimates I received was 50,000,000 tons. Of that aggregate not 10 per cent. was carried in American vessels. We need legislation to rehabilitate our ocean merchant marine, to construct the Nicaragua canal and to provide cable communication with the East. We must find markets for our surplus products. Where are we going to find them better than in the Orient?

"If we provide ships under the American flag to do our carrying trade every master of a ship will be an intelligent, active, ambitious agent to find markets for our goods. In the Orient there are about 800,000,000 people. They imported last year $1,500,000,000 worth of just such things as we have to sell. There is an advancing civilization in the Orient which ought to double that importation in a few years, for civilization always doubles the necessities of a people. Humboldt, more than fifty years ago, declared that the commerce of the world was to be in the Pacific. That prophecy is coming true.

"All nations of Europe see it. Are we alone to be blind? Before the Suez canal was completed, in 1870, New York was as near the Orient or about as near as Liverpool was; after that canal was completed New York was from 4,000 to 6,000 miles further off. Now, when the commerce of Great Britain had increased 42 per cent. in the Orient, it had only increased 17 per cent. in the rest of the world, showing conclusively the effect of the shortening of the distance and the lowering of freight rates between Liverpool and the Orient.

"Since the Manila battle the increase in the export of cotton goods to Northern China has been over 100 per cent. And the increase to China altogether and the rest of the Orient has been, within the last year, over 42 per cent. That is due to Dewey's victory. If we legislate properly and make a bid for a fair share of that $1,121,000,000 of imports of the Orient we will get it. But we will never get it by remaining idle while other nations are pushing their ships into that market and doing everything possible to secure the trade. The United States must arouse to the importance of doing something more than it has yet done, if it is going to get its fair share in those foreign markets."

With the passage of the bill as it now stands not more than $9,000,000 need be spent on American lines running to foreign countries each year.

DEEP IN THE OCEAN.

At the bottom of the ocean the temperature is down to freezing and often below it. There is no light, and the enormous pressure of a ton to the square inch in every thousand fathoms, or 16 times more pressure than we endure.

Twenty-five hundred fathoms deep the pressure is 30 times that of an engine drawing a train. Ground sharks brought up from no more than 500 fathoms die before reaching the surface of the water.

The fauna of the deep sea are modified forms of those which live in shallow water to-day, and they have been driven down to ocean depths through the law of the survival of the fittest. In the battle for existence their stronger rivals triumphed in the surface waters, and those beaten and discouraged sunk below.

Of course animals driven to these depths would gradually change in form. Down to 900 fathoms their eyes have become larger, so that they may see by the faint light. After 1,000 fathoms the eyes are huge or else disappear altogether and enormous feelers take their place. At great depths eyes are of no use.

IN WINTER QUARTERS.

The following named vessels are laid up at Port Huron: Steam barges, City of Concord, Business, Pawnee, Britannia, White Star, O. O. Carpenter, Maggie Duncan, Rhoda Stewart, City of New York, Linden, H. E. Runnels, Havana, M. Groh, Newaygo, F. R. Buhl, Black Rock, J. Lincoln, T. D. Stimson; barges, F. M. Knapp, Jupiter, E. E. Tyson, Magnet, Sunshine, Board of Trade, A. C. Keating, William Gundy, Constitution, Favorite, Dashing Wave, Eureka, Eva Robinson, Yankee, Bahama, William Young, W. H. Orton, William Edwards, John Wesley, Andy Johnson, Amazon, Thomas Calhune; schooners, Hattie Wells, J L. Quinby, A. J. McBrier, C. Crawford, A. Jackson, Mineral State, Mont Blanc, Anna P. Grover; tugs, C. L. Boynton, F. J. Haynes, Dispatch, W. G. Mason, W. W. Richardson.

Harbormaster O'Neil, Detroit, has completed his annual survey of the docks and register of all vessels wintering at that port. From the water works down to the River Rouge there are 128 boats of all descriptions. The list follows: Steamers, tugs, and government boats: Daisy, Nelson Bond, Jesse Farwell, Ogemaw, B. W. Blanchard, Hancock, Marigold, Amaranth, Haze, Bar Point lightship, Ballard's Reef lightship, Lime Kiln, lightship, Grosse Pointe lightship, Wales, Iron King, Balize, Onaping, City of Mackinac, City of Alpena, Kate Williams, Henry Johnson, Greyhound, City of the Straits, Idlewild, Baltimore, Lyster, Knap, Faxton, Wyandotte, Sailor Boy, Lansing, City of Buffalo, Admiral, Oneida, Merida, Erie, U. S. S. Yantic, City of Toledo, Reliable, City of Detroit, City of Cleveland, Kirby, Seattle, A. A. Parker, R. J. Hackett, Pauline, Hinkler, A. Weston, U. S. S. Fessenden, Farragut, Marian Teller, State of Michigan, C. H. Starke, Hattie, Lillie May, Champion, Newsboy, H. Snook, A. D. Hayward, L. W. Drake, Porter Chamberlain, Miner, B. Hought, Sigison, Cora, R. J. Cram, D. D. Johnson, Greyling, Black Diamond, Keal Kabin.

Schooners and tow barges: Nassau, Charles Chambers, Mike Corry, J. L. Richards, Saveland, Iron Queen, M. T. Wilcox, Laurier, Sims, Hopkins, Kate Darley, M. P. Barkelow, Lynn, Casey, Reuben Doud, Rowland, Monguagon, Mystic Star, Senator, Fred Dunford, Fulton, J. J. Case, Fostoria, St. Lawrence, Dacotah, Swallow, D. K. Klint. J. C. Card, Bay City, Wayne, F. C. Leighton.

Steam yachts: Lucille, Waneka, Juanita, Sea Fox, Enquirer, Cynthia, Sylph, Muir, Pastime, Vita, Truant Dawn Idler, Wayward, Lily, Roberts.

Scows: Newel Hubbard, Stone, Fox, M. Sutter, Exilda, Viola, sandsucker Champion, Wm. Jones, sandsucker Mary.

The following named craft are now in winter quarters at Lorain, Ohio: 111, 117, Ideal, Ethel, Daisy, Maida, Ciscoe, Magna, Manila, Selkirk, Susie B, Roscius, Mariska, Cascade, Andaste, Colonial, Choctaw, Emeretta, Louisiana, O. J. True, John Fritz, Columbian, Henry Cort, Cris Grover, James Watt, M. A. Hanna, State of Ohio, Dredge No. 6, W. H. Moore, Superior City, Alfred Krupp, Oscar Folsom, Robert Fulton, John Smeaton, John Ericsson, James Nielsen, Three Brothers, Samuel Mather, Robert Downey, John A. Roebling, Charles H. Davis, Alexander Holley, Clarence A. Black, Gen. Franz Siegel, George H. Corliss, State of New York, Sidney G. Thomas, Selah Chamberlain, George Stephenson, Douglas Houghton, Dredge Continental, Dredge Gen. Meade, Sir William Siemens, Sir Joseph Whitworth, Sir Isaac Lothian Bell, Sir John Scott Russell.

All vessels are now in quarters at Collingwood. At the G. T. R. wharf the steamers City of Toronto, City of Midland, City of Collingwood, City of Parry Sound, Majestic and the D'Alton McCarthy occupy berths, while the steamer Germanic is lying at the pier leading to the elevator. The town wharf is surrounded by the steamer J. J. Long, the dredge D'Alton McCarthy, the tugs Saucy Jim, Severn and Hugh S., and the little steamer Lillie. In the Hurontario street slip the Government dredge Challenge and tug Trudeau, and the drill boat occupy prominent places. The hull of the burned Pacific has also been removed to the south end of the slip. The steamers Atlantic and Britannic are at the head of the dry dock, the steamer Telegram at the east side of the entrance to the docks and the Carmona is on the blocks within the gates. At the Owen Sound the C. P. R. steamers Manitoba, Athabasca, Alberta and the freighter Algonquin occupy berths on the east side of the river. On the west side are the schooner Azov, the tug Maitland, the City of Windsor, the D. G. S. Petrel, the O. G. S. Gilpie, the D. G. S. Bayfield, the tugs Harrison and Heather Bell, the Erin and her consort Danforth, the Rosedale and the tug Agnes. The Sequin is at Midland.

ARMOUR-MARION CASE.

The collision in the St. Clair river on Sept. 18, 1889, which resulted in sending the steamer Philip D. Armour to the bottom, is recalled in a suit filed in the Superior Court at Milwaukee. R. P. Fitzgerald, who was the owner of a one-third interest in the steamer, is the defendant and the Michigan Fire & Marine Insurance Co. the plaintiff. Before the boat left Detroit on the unfortunate trip Mr. Fitzgerald secured a portion of his interest in the Armour by taking out a policy for $6,000 with the insurance company. Mr. Fitzgerald also covered his interest by securing policies in other companies. While proceeding up the river the steamer Marion, bound down, collided with the Armour and sent her to the bottom. In consequence the Marion was libeled in the United States court in Milwaukee and her proprietors paid $37,500 for damages. Prior to the libel suit, however, the insurance companies had been called upon and had made good their liability. The Michigan company now asserts that under its policy, in the event of loss or damage, the insured, by accepting payment, transferred his rights or recovery against the person or thing causing the damage, to the insurance company. Mr. Fitzgerald received $5,025.66 as his share of the verdict against the Marion. The cost of instituting and conducting a libel suit may be estimated from the statement in the complaint that it cost the owners of the Armour $18,508.82 to carry on the suit. Under its policy the Michigan company claims, Mr. Fitzgerald surrendered rights to the company which brought him $903.72. Demand for the amount was made Sept. 27, 1893, but it was refused and the company asks that amount with interest.

VALUABLE IF PRACTICABLE.

Air as a lubricant to increase the speed of vessels is an idea that if worked out to a practical use will revolutionize speed so that the fastest cruiser of today will move at but a snail's pace compared with the ships of the future. If William R. Motheral proves all that he claims for his newly patent boat, this will come to pass. A working model now lies in the navy yard at Washington, where it was taken for trial tests.

The use of air as a lubricator to remove the friction between the bottom of a vessel and the water is all that is involved in the invention for which Mr. Motheral makes such important claims. The manner in which the principle is applied is novel, and, its originator asserts, effective.

By removing all of the friction, which is the chief element that impedes the progress of vessels, the inventer argues that it will be quite possible to propel the heaviest seagoing ships at a speed of 100 miles an hour.

The Motheral ship floats on a little cushion of air. The bottom of it is full of minute holes through which air is continually pumped. Friction, which is the rubbing of a ship's under body against the water, is thus abolished. The under body of the Motheral boat is wedge shaped, and as it is driven through the water rises more and more out of it, so that there is practically no resistance.

The result of the air cushion and the shape of the boat is that all the power of the engines is devoted to sending the boat forward and none is lost in overcoming friction.

Mr. Motheral claims that the battleship Indiana, if built according to his system, would easily steam 150 miles an hour. The pressure, he says, maintains an even beam, makeing seasickness impossible. The air cushion is similar in action to the oil on the axle of a wheel. The latter turns not upon the axle, but on the globules of oil. The shape of the vessel and the reason why it conduces to speed may be illustrated by the smooth pebble, which, when thrown, skips across the surface of a pond and goes skipping as long as it has any impetus.

The Motheral model is twenty feet long and now lies alongside the model of the Indiana in the navy yard. It is taken in some extent seriously by the officers or it would have been returned at once.

CLAIM against United States.—The proceeds of the sale of a vessel seized as a prize, deposited by a marshal in a national bank, which is a special or designated depositary of public moneys, do not constitute public moneys of the United States, within the meaning of the statutes applicable to public money and authorizing its deposit in a public depositary; and such deposit does not, therefore, constitute a payment of such moneys to the United States, which will make the government liable therefor in case of the failure of the bank pending appeal. Charles Coudert, as ancillary executor of the last will and testament of Raphael Madrazo, deceased, plff. in err. vs. United States, 20 Sup. Ct. Rep. (U.S.) 56.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD).

Immediate Reply Necessary—An obligated steamer proposing by whistle to deviate from the customary course should receive an immediate reply. The New York, 20 Sup. Ct. Rep. (U. S) 67.

Failure to See Lights.—The failure of a vessel to see the lights of another vessel or hear signals blown by her on a clear night, when they are not more than a mile apart, is conclusive evidence of a defective lookout. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Recovery from Loss of Cargo Where Both Vessels in Fault.—The fault of a vessel will not preclude the underwriters of her cargo from recovering the full amount of their damages caused by collision, from another vessel, which is also in fault. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Where Testimony is Withheld—Presumption.—Failure to put the officers and crew of a vessel on the stand to explain why the lights of another vessel were not seen or her signals heard in a clear night, when the vessels were not more than a mile apart, greatly strengthens the presumption of a defective lookout. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Not Excused from Attending to Signals.—The fact that a steamer is entitled to hold her course does not excuse her from attanding to signals, from answering when an answer is required, or from adopting such precautions as may be necessary to prevent a collision, in case there be a distinct indication that the obligated steamer is about to fail in her duty. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Rule Applied.—The rule that every vessel, when approaching another so as to involve risk of collision, shall slacken her speed, or, if necessary, shall stop and reverse, clearly applies to a vessel going with the stream, which has signified an intention to pass to the left, which involves danger of collision. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Duty of Vessel when Signals are Disregarded.—The rule that a steamer approaching another vessel which has disregarded her signals, or whose position or movements are uncertain, is bound to stop until her course be ascertained with certainty, is peculiarly applicable when a vessel going up a narrow river channel is about to meet a descending vessel upon cross courses, and signals of the latter are given three times without reply. The New York, 20 Sup. Ct. Rep. (U. S.) 67.

Action for Charter Hire—Damages for Defects in Vessel.—Where the undisputed evidence showed that a vessel was examined by a charterer, and accepted by him with full knowledge of the condition of her machinery and appliances, it was not error to instruct the jury, in an action to recover her hire under the charter, that claims set up by defendant on account of damages and delays alleged to have resulted from the defective condition of such machinery and appliances should not be considered unless the defects complained of were latent and unknown to defendant. Frank Waterhouse, Limited, et al. vs. Rock Island Alaska Min. Co., 97 Fed. Rep. (U. S.) 466.

Powers of Master—Charter of Vessel to Complete Voyage.—Defendant, a corporation which was the owner of an ocean steamship, contracted to transport passengers and freight from London, England to Dawson City, on the Yukon river. On the arrival of the ship at St. Michaels, which was the end of her voyage, and where defendant had arranged to tranship her passengers and cargo to other vessels for the remainder of the transportation, such other vessels had not arrived. Held, that it was not within the powers and was the duty of the master of the steamship to take such reasonable measures as were necessary to carry out the contract of his employer, and earn for it the passage money and freight, by delivering his passengers and cargo at the point of destination, and that a charter of another vessel for that purpose, executed by him in good faith and in the exercise of a reasonable discretion, was binding on the defendant. Frank Waterhouse, Limited, et al. vs. Rock Island Alaska Min. Co., 97 Fed. Rep. (U. S.) 466.

Collision—Negligence—Right of Way—Two Tows.—The C., a ferryboat, crossing from her New York slip to her Brooklyn slip, where the river was but 1,400 feet wide, and heading nearly directly across, when it had gone one-third the distance, sounded a single blast to the tug W., and a tandem tow, and the tug B., which had a dumper lashed to it, both of which were proceeding down river on the Brooklyn side, against a flood tide, with the C. on their starboard hand, to which the W. replied with one, turned somewhat to the starboard, and passed under the stern of the C. The B. did not answer, nor follow the course of the W. When in midstream, and before the W. had passed under her stern, the C. gave another blast, and then, getting no answer, gave a third signal of one whistle. The C. cleared the W. by a few feet and immediately stopped, and backed or turned to starboard. Held, that the B., which was bound by the rules of the road to stop or turn to starboard, and which could not have done so and avoided the accident, was in fault; and that the C. was not in fault, it having had a right, in the first place, to proceed on its course, both tugs having then time and space to keep out of her way, and it having later been unable to stop sooner than it did, without a collision with the W. The Clinton, 97 Fed. Rep. (U. S.) 510.

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NEW YORK STATE CANALS.

Not since the opening of the Erie canal, in 1825, have the artificial waterways of the state attracted such general attention as now.

The canals in New York state were built during the first quarter of the present century, and today are fifty years behind the times. Very little improvement, comparatively, has been made in them. If DeWitt Clinton, famous as the most earnest and influential advocate of the Erie canal in the early days, could return to earth he would discren few changes on the "raging Erie."

The completion of the Erie canal was the occasion for great jubilation throughout the state. DeWitt Clinton was serving his third term as Governor and enjoyed the gratitude and confidence of the people. In order that the opening of the canal might be appropriately observed, arrangement was made for a succession of celebrations from Buffalo to New York city. A line of cannon was formed from point to point within hearing distance along the route, and the moment the first boat entered the canal a signal was fired that was transmitted through to New York harbor and returned again to Lake Erie, the transmission and return of the signal requiring three hours.

Four boats left Buffalo for New York on Oct 26, 1825, eight years and four months from the time ground was first broken in the work at Rome. Gov. Clinton, on board the Seneca Chief, was in command of the little fleet. In the party were numerous public officials and committees from Buffalo and other places. The Seneca Chief was drawn by four caparisoned horses, and as the boats passed slowly down the canal, stops were made on successive days at different points where the local authorities had arranged fitting celebrations.

With the single exception of lock lengthening and the ordinary repairs, no considerable improvements or extensions have been made to the canals since 1856. This fact and the great advance made in railroading is largely responsible for the decline in traffic. The thirty-ton freight engine has been placed by the seventy-ton engine. Freight trains of fifteen or twenty cars have been succeeded by trains of over fifty cars. The twenty-ton car has replaced the ten-ton car. Curves have been straightened and grades have been lowered. Air brakes have been supplied, and every appliance that would assist in increasing cargoes and attaining speed has been utilized by the railroads. The canals have also suffered seriously from the exorbitant terminal changes in the harbors of the cities of Buffalo and New York.

The canals were built and maintained for the purpose of cheapening the cost of transportation from the producing lands of the West to the consuming populace of the East, which is largely centered in our great cities. For over sixty years the canals have succeeded year by year in reducing this cost of transportation by rail as well as by water, and New York city got the great bulk of this traffic. Recently, however, the railroads have been able to carry at a much less rate than the canals. The result has been that railroads touching ports competing with the port of New York have got the bulk of the traffic. This is an indication of the improvements that must be made to the canals of New York if the Empire State is to maintain its commercial supremacy.

THE IMPORTANCE OF THE GREAT LAKES.

The Great Lakes contain more than one-half the area of all the fresh water of the globe. They make up the largest system of deep water inland navigation on the globe.

No other inland water may bear upon its bosom so vast a commerce, or touches as these do, the vital interests of so many millions of people.

Lying, in general direction, east and west between the 41st and 47th parallels, they penetrate the tide water on the St. Lawrence.

The western extremity of the system, the head of Lake Superior is 1,700 miles only from the waters of the Pacific. It is 2,384 miles from Belle Isle, at the mouth of the St. Lawrence, and 4,618 miles from Liverpool.

The range of this water system is entirely within the limits of the north temperate zone, on the line on which population has most freely moved westward, where final settlement is most compact, and where climatic conditions insure the largest returns to capital and labor. Lake Superior, the head of the system, alone receives the waters of 200 rivers.

One hundred and fifty miles northwest of Port Arthur and Duluth are the fountains of three of the great drainage systems of the continent. Physical conditions there send flowing waters northward to the ocean through Hudson Bay; southward through the Mississippi Valley and the Gulf of Mexico, and eastward through the lakes and the St. Lawrence. For commercial purposes, the northern drainage system has not yet been utilized, but flowing water will forever be a potent instrument of commerce, southward and eastward, between the interior and Atlantic coast.

THE MOST MODERN STEAMER.

According to the calculations of the scriptural pundits, Noah's ark was 540 feet long; the Campania of the Cunard line is 625 feet, the Kaiser Wilhelm der Grosse is 648 feet and the Great Eastern was 680 feet, but the Oceanic, the last vessel built for the White Star line Atlantic service, is twenty-four feet longer than the Great Eastern, or 704 feet over all. The Great Eastern was of greater beam and tonnage, however, being eighty-three feet beam, fifty-eight feet deep and having a displacement of 22,500 tons.

The Oceanic is sixty-eight feet beam, forty-four feet deep and has a displacement of 17,000 tons. The Great Eastern's engines developed only 2,700 horse power, and her best speed was eleven knots an hour. The engines of the Oceanic are built for 45,000 horse power, and she is expected to steam across the ocean day after day with her triple screws at the rate of twenty-five miles an hour, which is about the same speed that the new mail service from New York to San Francisco is expected to maintain. The Great Eastern was a failure as an ocean carrier, because she took so much coal, was so awkward to handle and cost so much for repairs. It was a serious problem to turn her around in an ordinary harbor, and to get her in and out of her slip was a matter of the greatest anxiety, but the invention of steam and electrical steering apparatus has made such problems of navigation comparatively easy, and the captains of the Campania, or the Kaiser Wilhelm, or any of the other great leviathans of ocean commerce handle them, comparatively speaking, as if they were a team of horses. It is interesting to compare the Oceanic with the steamer which Robert Fulton put upon the Hudson within the lifetime of many men. John Sherman was seven years old. The late Senator Morrill was of age, Representative Grow, of Pennsylvania, was ten years old. Senator Morgan, of Alabama, was six. Senator Pettis was nine, Senator Hawley was four years old, Senator Cullom and Senator Allison were infants in arms when the first steamship was launched upon the ocean. In 1830 there were five steamboats hailing from the port of New York. The journey from New York to Washington was made partly by steamboat and partly by stage, and it took as much time as is now required to go to London.

THE Falls Hollow Staybolt Co., of Cuyahoga Falls, O,, are in receipt of a large order for their Safety Hollow Staybolt Iron from one of the leading ship builders on the Pacific Coast.

A NEW SOUNDING APPARATUS.

To tell the exact depth of water beneath a vessel at any given time at a moment's notice is the object of an instrument recently perfected, known as the fathom meter.

The fathom meter is circular in form, and in the center is a suspended circle, which is set in gimbals, after the fashion of an ordinarry compass. The circle has a frame of glass and is graduated into fathoms, which are pointed out by the indicator. In the center, and running clear across, is a small magnet. Connected with the instrument is a primary cell, from which a sufficient current can be obtained when it is desired to energize the magnet. The earth being also a magnet, its magnetism or zero, is obtained, and when the instrument is properly adjusted and the circuit is closed, an observation taken from it on board of a moving ship, shows immediately the difference of the earth's magnetism at that point.

The principle upon which the inventor worked was that, as the earth is a magnet, with another smaller magnet in the instrument, the indicator would point out and register on the dial the exact distance which there may be at that moment between the greater and the lesser magnet, evidently the exact depth of water under the vessel.

As soon as his model was ready, the inventor of the fathom meter prepared to test it, and for that purpose went on a steamer from New York to Newport News and back again. He placed the fathom meter in the captain's room, and there he was shut in with it. At intervals during the trip the captain instructed an officer to take a cast of the lead, and as soon as the officer made the report the captain went to the inventor and asked him: "Well, what depth are we in now?" The answer on each occasion was prompt and correct, the indicator pointing unerringly to the number of fathoms beneath the vessel.

Any one who knows how soundings are taken on board ship will see that an instrument like this, if further tests bear out the claims of the inventor, is bound to prove useful. With the lead it is next to impossible to obtain ordinarily correct depths, for the reason that while the sounding is being taken the vessel is moving and the lead line is consequently inclined. Before the lead is thrown the vessel slackens up a little, but still keeps moving onward. Now by means of the fathom meter the exact depth can be ascertained, no matter at what speed the vessel is running, and hence it will be seen that a great deal of time can be saved, and no allowance need be made for the inclination of the lead. The same result has for years been obtained by the Thompson patent lead, but this is supposed to be more accurate and handy.

TRADE TO THE WEST INDIES.

Mr. Frye, chairman of the Senate committtee on commerce, has introduced a bill relative to Cuban shipping and also measures providing for the extension of United States laws relative to commerce, navigation and merchant seamen to the Hawaiian islands and Puerto Rico. The bill relating to Cuban shipping provides that vessels hailing from the island should be entitled in United States ports to the rights and privileges extended to the most favored foreign nations. The bills relating to the Hawaiian islands and Puerto Rico indicate the intention to regard these islands as part of the territory of the United States, at least in so far as their commerce and navigation is concerned. The commissioner of navigation is authorized to make regulatoins for the nationalizing of all vessels owned by the subjects of the Hawaiian Islands and Puerto Rico on April 11, 1899, and which have been continuously so owned to the date of nationalization. The coasting trade, it is provided, shall be regular in accordance with the provisions of the law applicable to such trade between any two great coasting districts.

MARINE PATENTS.

Patents issued December 27, 1899, reported specially for the MARINE RECORD. Complete copies of patents furnished at the rate of 10 cents each.

639,704 and 639,705.—Dumping Scows. C. C. Bowers, Elizabeth, N. J., assignor to F. B. Delehanty, New York, N.Y.

639,733, 639,734 and 639,735.—Tide Powers. C. M. Johnson, Lexington, Ky.

639,884.—Pile. S. K. Behrend, Washington, D. C.

639,916.—Sail-reefing device. Gustav Achterberg, Fort Monmouth, N. J.

639,939.—Steering and warping gear. Robt. Richardson, Glasgow, Scotland, assignor to G. A. Mill, same place.

640,027.—Boat lowering and detaching apparatus.—G. S. A. Hanking, Calcutta, India.

640,116.—Sail. John Duthie, Portland, Ore.

POSSIBILITIES OF THE TURBINE PROPELLING POWER.

A revolution in marine travel is impending, and it will not surprise marine engineers if the tremendous stride forward shall become first commercially feasible on the Great Lakes before it is adopted on the ocean, says the Chicago Chronicle. Of all the prophecies for the Twentieth Century none looms with so much promise of immediate results as the turbine engine. From recent speed tests in England it has been found that a torpedo boat equipped with a turbine engine can make 45 miles an hour without preceptible vibration from the engine. Marine engineers say that it is within the range of present construction facilities to build passenger steamers with turbine equipment that will make at least 35 miles an hour on regular schedules.

Chicago passenger men have given the recent demonstrations of speed power by the improved engine, more than passing thought. Capt. Stewart, of the steamer City of Milwaukee, the crack boats of the Graham & Morton fleet, will sail for England within a week or ten days, to examine the new British torpedo boat at Parsons' Shipyard, at Newcastle, which has just accomplished the 42 miles an hour trial performance. Capt. Stewart will be accompanied by Capt. Williard, of Ogdensburg, N. Y., another of the most practical steamboat men on the Great Lakes. Neither Capt. Stewart nor Capt. Willard will make the trip out of mere curiosity. It is understood that both men will act as representatives of prominent capitalists, who are interested in a plan to build new and powerful passenger steamers with turbine engine equipment, running out of Chicago to various lake and river points. Capt. Stewart is an employe of the Graham & Morton Co., and presumably represents President Graham, and the other officers of the company, in the proposed investigation.

The Ogdensburg capitalists whom Capt. Willard represents, are said to be desirous of establishing a new line of passenger steamers that will connect Chicago with Montreal and Quebec. It is held that a line equipped with turbine engines of such relative power as has been put into the British torpedo boat could compete with the railway service between here and Quebec.

Imagine a passenger steamer leaving the Chicago harbor with engines and fuel capable of 40 miles an hour sustained speed! Such a steamer would reach the harbor of St. Joseph in an hour and a half. It would reach the harbor of Milwaukee in a little more than two hours, and would more than equal the present ordinary schedule of railway trains between the points named. It is only within recent years that the train service between Chicago and Milwaukee has been cut to the two-hour limit, and that only on exceptional trains. When the whaleback Christopher Columbus began making the 85 mile run from Chicago to Milwaukee, in a little more than four hours, or 20 miles an hour, marine men stood amazed at the accomplishment. Some of the same men are now willing to predict that the turbine engine will cut the whaleback's time in two before the Twentieth Century is many years old.

The fastest passenger steamers on the Great Lakes do not now exceed 15 miles an hour on regular trips of any length. The 20 miles an hour of the Christopher Columbus and the 22 and 23 miles an hour of the North West and North Land, that ply between Buffalo and Duluth, are wholly phenomenal. The average lines do not pretend a sustained speed of more than 15 miles and many make less. This means that if the turbine engine becomes commercially feasible and a uniform speed of even 30 miles is attained, the present average speed of paasenger steamers will be immediately doubled. From Chicago to Mackinac Island, instead of 24 hours as at present, the trip with a turbine equipped steamer would consume 10 or 12 hours. A passenger could leave Chicago Saturday evening, spend Sunday on Mackinac Island and return to Chicago by Monday morning. It keeps the railroad companies busy to offer such inducements at present. What this would mean in revolutionizing lake passenger travel and popular lake trips, is easily realized.

The Great Lakes are especially favorable for developing turbine engines, say expert marine men. This is because there is comparatively smooth water on the inland lakes, and speed is, after all, not wholly a matter of engine power. The construction of the hull and the resistance below the water line are two prime factors. On the ocean, where shallow draught is impossible and dead weight below the water line necessary for safety, the attainment of phenomenal speed even by the turbine engine is less feasible than on the lakes and river channels. This is why marine engineers are looking for the speedy adoption of turbine engines by the constructors and owners of new steamers for the Great Lakes.

It is also predicted that the turbine engine will be first demonstrated a success on exclusively passenger steamers. This is not because speed is less desirable for freight carriers, but because passenger cargoes are mainly carried above the water line and are comparatively light. Passenger hulls can be constructed for phenomenal speed much more easily than freight hull, whose main cargo is below the water line and hence of great resisting power. Marine men say that the construction of passenger hulls on the lakes has already reached a point where a sustained speed of 25 miles an hour would be easily possible with present style of engines, provided the latter were powerful enough. In other words, the present limited speed of passenger boats is due to lack of engine power, for economy's sake, and not to any defect in hull construction. If the turbine engine is adopted in lake and river passenger traffic, it is predicted that well-equipped steamers of that type running from here to Montreal connecting there with the transatlantic liners will revolutionize ocean passenger travel so far as the west and middle west are concerned. The recent deepening of the St. Lawrence river canals to 14 feet, by the Canadian Government, makes possible the passage of vessels of large capacity between here and tide-water.

But the freight problem is, after all, the one which the turbine engine may be called upon to solve in a way that will discount all commercial advantages from the passenger trade. New York's annual export grain shipments of about 150,000,000 bushels is already in jeopardy from the certain diversion of the grain export trade to the Montreal route, as a result of the completed Soulanges canal. The latter has given a uniform 14-foot depth in the St. Lawrence chain of canals, and as the Welland canal has already been enlarged so that depth there is now a 14-foot channel from Chicago to the Atlantic ocean. Conservative grain handlers are predicting that the result will be a reduction in grain rates from Chicago to the seaboard of from 1 to 2 cents per bushel. Another effect will be to enlarge the area of territory commercially tributary to Chicago, and to diminish the grain shipments to Galveston and other Gulf of Mexico points. The problem before marine men now is to make the turbine engine possible for freight carriers of such size and speed as will insure the transfer of grain from the head of the lakes to tidewater without breaking bulk, and at a cost that will necessarily lower railroad rates for the same class of business.

About $70,000,000 has been spent by the Canadian Government in perfecting the lake and river route to the seaboard, as compared with but $40,000,000 spent by the United Srates government for all purposes on the Great Lakes, their harbors and connections. In spite of this vast outlay and the natural advantages of the Montreal route, the American grain trade has uniformly sought the Buffalo and New York outlet on account of low rates. Five cents a bushel from Chicago to the seaboard has within recent years been the maximum, and more often it has been but a fraction more than four cents. Of this, the lake vessels to Buffalo get about 2 cents, and the railraads or elevators and Erie canal barges the rest.

Grain shippers are now predicting that the entire cost to the seaboard will, by the St. Lawrence route, be reduced to an average of 3 cents a bushel. There is, of course, a possibility of even lower rates if the turbine engine should solve the problem of time aud distance for freight carriers. By loading in bulk at Chicago or Duluth and reaching tidewater at a speed now required by railroads for the same distance, the supremacy of the lake and river route, at least in summer, seems presently assured.

In the first half of the present century, each nation practically depended upon its own agriculture for the subsistence of its people. Now, a bushel of wheat raised far west of the shores of Lake Superior, is cousumed by cotton spinners in England, 5,000 miles away from the field of its growth. The rearrangement of the world's methods has resulted in the reduction of the freights upon grain about 75 per cent. and has brought India, Argentine and other foreign countries into direct competition with the United States in supplying breadstuffs to the toilers of Europe. The limit of reduction in railroad freights seems to have been reached, and the future problem is the reduction of rates by water transportation from the west and northwest to the seaboard. It costs twice as much to carry a barrel of flour from New York to Europe, though the latter distance is more than twice as much as the former.

Ocean freight averages about 3 cents a bushel on grain and the whole cost from Chicago or Duluth to Europe is from 9 to 10 cents a bushel. More than half the cost is in elevator charges, commissions and canal freights. More recently the United States have undertaken to supply the world with iron and steel and the transportation of iron ore from the Lake Superior region is another problem confronting the marine engineers.

The effect of low transportation rates upon the industrial prosperity of this country is recognized by all practical economists, and the adoption of the turbine engine will, it is held, inevitably reduce rates, as soon as it is possible to cut in two the time required by freight carriers to and from the points of eastern trans-shipment.

The total distance from Chicago to Montreal via the Welland canal is 1,281 miles, of which 224 miles is in restricted channel, the rest being comparatively deep water. From Duluth to Montreal the distance is 67 miles greater that from Chicago, with 48 miles more of restricted channel. Canal distances are included in the restricted channels. With an average speed of 30 miles an hour, a freight carrier equipped with a turbine engine could make the distance from Chicago to Montreal in 43 hours, not counting canal delays.

Even allowing 72 hours as the time required for making the distance, including the passage of canals, it would thus appear that the entire distance to tidewater could be covered in three days, which is now considered rapid time for the fleetest freight carriers between Chicago and Buffalo, where there is trans-shipment to rail or canal. The tremendous possibilities of such a saving of time and labor in bringing grain or ore alongside the ocean leviathans at tidewater appeals to marine experts from many different view points.

Capt. William Walsh, for more than forty years a lake and river navigator said apropos to the turbine engine: "High speed will be a question of the least resistance. We know nothing of the turbine engine except what we hear from the English experiments, but we do know that the construction of hulls to make the speed claimed for the new engine is easily possible. Before the war steamboats ran from New Orleans to Mobile and also up and down the Mississippi river at 20 to 23 miles an hour. The same speed is now made in the Hudson river. On the lakes there has been little speed developed in the last 25 years. It has all run to increase in carrying capacity and the driving out of sailing craft by steel construction for steamers and barges.

"Lake passenger steamers do not make speed now on account of deficient engine power. Their hulls are all right and are capable of 50 per cent. more speed if they had the engines. Tugboats have ten times the power of large steamers in proportion to their size, because they are constructed for the sole purpose of developing engine power. The big ore and grain carriers of the lakes are nearly all dead weight below the water line, consequently their resistance is at a maximum.

"It the turbine engine can be developed in such a way as to nulify or modify this dead weight resistance there will be a revolution in the possibilities of water transportation. On the lakes there are contrary and head winds, making for delay, but these are of small moment as compared with the necessity of overcoming the inertia of huge bulk cargoes below the water line, which is the one great problem before the engineers."

ANOTHER PIONEER GONE.

Capt. Charles Bennett, who sailed the Great Lakes for forty-four years, and was probably one of the best known lake captains, died at his home in Lasalle, Monroe county, Wis., on Monday, aged nearly ninety-one years.

During his career as lake captain he was connected with many enterprises. He carried the strap rail used on the old Adrian railroad between Monroe and Adrian, now the Lake Shore; also the stone used in the locks in Swan creek, near Toledo. In 1884 he made a trip from Ogdensburg, N Y., to Chicago with a cargo of butter, eggs, apples and oats, on which a profit of over $40,000 was made. In 1860 he explored Isle Royale, in the Lake Superior district, for copper, with the schooner Dream of Cleveland, and afterwards sank a shaft that was worth over $100,000. In later years he conducted a pleasure resort near Flint, Mich., where he was well known for his generosity and sailor oddities. Fifteen years ago he retired to his farm in Lasalle, where he has resided continuously. Three years ago Capt. Bennett and his sister, who had been separated since infancy, met. They had not seen each other in over seventy years.

THEN AND NOW.

Traffic on Lake Superior in the years prior to the opening of the "Soo" canal was so infinitesimal that no one lacking the gift of second sight could possibly have foreseen its growth to its present magnitude. But a backwards look at the craft of the early days shows its wonderful development better than a score of comparative tables of vessel and freight tonnage.

The look backwards from the present day of 8,000 ton steel steamships to the time when the first schooners began competition with the Indian's canoe and the voyageur's batteaux is but a trifle more than seventy-five years ago. The advent of the first steamer on the lake is a quarter of a century closer.

The first vessels on Lake Superior of which there is any record were the Invincible, Otter, Mink, Recovery and Discovery. They were schooners varying in size from 20 to 100 tons and built on the lake by the American, Northwest and Hudson Bay fur companies. The Invincible was wrecked on Whitefish Point about 1822. The Discovery went to pieces in running the rapids at the "Soo." The fate of the Otter is unknown. The Mink went ashore on the Canadian side above the rapids. The Recovery ran the rapids safely in 1829 and finished her service on Lake Erie. Bayfield, while making his survey of Lake Superior in 1823, is supposed to have had the Mink loaned him by the Hudson Bay Company.

The opening of the first ship canal at Sault Ste. Marie practically concluded the history of early navigation on the greatest of the Great Lakes. It gave lake commerce the stimulus which has caused it to develop to its present magnificent proportions. Without it marine interests on Lake Superior must have remained much as they were in the earlier period.

NOTES.

REPRESENTATIVE Alexander suggests that, instead of the Corliss bill for damming the Niagara river, a joint resolution may be passed by this Congress authorizing the President to negotiate with Canada on the subject. It would seem to be good economy to find out whether Canada will consent before enacting a law which would involve the payment of considerable salaries to a force of engineers for taking charge of the work.

WITHIN the past few years a great change has come over the feeling of the American people toward the navy, and a popular demand arose for war vessels as good as or better than those of any other nation on earth. With the building of such vessels as the great ironclad Indiana, costing $3,250,000, and other vessels in her class, such as the Oregon, Iowa, and Massachusetts came the necessity for dry docks large enough to accomodate those vessels in case of accident and for the usual cleaning and painting purposes.

AN extraordinary floor has been laid in the London Coal Exchange. It is constructed of inlaid wood, and the pieces arranged so as to represent the mariner's compass. Some of the slabs of wood, of which there are altogether 4,000 have interesting historical associations. Thus the one forming the haft of the dagger in the city corporation arms is a portion of a tree planted by Peter the Great when he worked as a shipwright at Deptford.

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EARLY INDUSTRY, "SOO" RIVER.

Taking a retrospective glance, the Sault Ste. Marie News says:

Many people who in recent years have traversed the old channel of St. Mary's river have remarked the remains of numerous docks which at one time were located along the channel banks, and have speculated upon their probable use. It is obvious, of course, that they could not have been merchandise docks, as no settlements are in evidence where they were located. Yet, in all, there were at least 24 of them at one time at favorable points between the "Soo" and Detour. Only the oldest inhabitants remembers the object of the construction of these wharves. Their ruins now mark the decadence of what was one of the principal industries of the early settlers, Indians and others, along the St. Mary's river, from the opening of the old ship canal until early in the seventies, when the industry began to languish and finally dwindled entirely away. The docks were the fuel stations of the steamers plying between Lake Superior and the lower ports.

M. P. Church, who was conversant with the early river trade, says that the docks were located as follows: Detour, 3; Sailors' Encampment, 5; Dark Hole, 1; East Neebish, 6; Church's Landing, 5; Payment's Dock, 1; Lake George, 1; Hopkins' Dock, 1; Wilson Point, 1.

"But few people of the present time," said Mr. Church, "have any idea of the extent of the fueling trade that was carried on from the commencement of the Lake Superior traffic until coal began to supplant wood for fuel on the steamers. In the early days, and until about 1868, wood was exclusively used. The first steamer to use coal was the old Iron City, owned by Pittsburg parties, and she was the only 'coal' boat for a considerable time. St. Mary's river, being midway between the Lake Sdperior and lower ports, was the natural fueling point, and as the commerce expanded a flourishing industry was built up that gave employment to several hundred people in Chippewa county, and left a large sum of money annually at the "Soo."

"The largest dock was that at Church's Landing, which was 300 feet in length and of sufficient capacity to hold 2,000 cords of four-foot wood—the regulation length. Thousands of cords of hardwood were cut yearly to supply the boats. The settlers and Indians would begin work early in the winter months and continue chopping until spring. Nearly all the wood was transported to the docks in sail boats. It was no uncommon sight in those days to see a fleet of birch bark canoes laden with wood, paddled by Indians, in early spring, headed for one of the docks. There was always an active demand for the wood and it was as good as cash in trade at any time.

"The steamers would always endeavor to get into the river along in the afternoon in order to reach their favorite dock so that they could 'wood up' during the night and thus save time. It was nothing for a steamer to take on from 50 to 100 cords at a 'wooding,' as it was termed. It required from one to six hours for a steamer to wood up—quite a difference in comparison with the modern plant which will coal a steamer up in from ten minutes to half an hour. The price of wood ranged from $2 to $9 a cord. The opening up of the coal fields and reduction in cost soon brought coal into general use for fueling purposes, and it was not long before wood was entirely dispensed with by the steamers and one of the "Soo's" first industries a thing of the past. It is now almost wholly forgotten."

THE FASTEST STEAM VESSEL AFLOAT.

For nearly three years the famous little torpedo-boat Turbinia, the first vessel fitted with steam turbine machinery, has held the distinction of being the fastest vessel in the world, and only recently she attained what may truly be called the marvelous speed of 35 knots, or a little over 40 miles an hour. The Turbinia was commenced in 1894, and, after many alterations and preliminary trials, was satisfactorily completed in the spring of 1897. It may be worth noting anew here that her principal dimensions are length, 100 feet; beam, 9 feet, and draught of water under the propellers, 5 feet, the trial displacement having been 44½ tons. Steam is furnished by a water-tube boiler with 1,100 square feet of heating surface and 42 square feet of grate area, and closed stoke-holds are used, with the air supplied by a centrifugal fan mounted on a prolongation of the low-pressure turbine shaft. The engines consist of three compound steam turbines, high-pressure, intermediate and low-pressure, each driving one screw shaft; on each of the shafts are three propellers, making nine in all; the condenser is of the usual type, and has 4,000 square feet of surface. When officially tested, she attained a mean speed on the measured mile of 32¾ knots, and the consumption of steam for all purposes was computed to be 14½ pounds per I. H. P. on the main engines. Subsequently, after some small alterations to the steam pipe, she was further pressed, and during some of these later trials the phenomenal 35-knot speed was reached.

The first vessel of larger size than the Turbinia to be fitted with steam turbine machinery are the topedo-boat destroyer Viper, for the British Government, and a similar vessel for Sir W. G. Armstrong, Whitworth & Co., Ltd. These vessels are of approximately the same dimensions as the 30-knot destroyers now in the British service, but have slightly more displacement. The boilers are about 12 per cent. larger, and it is estimated that upwards of 10,000 horse-power will be realized under the usual conditions, as against 6,500 with reciprocating engines. The engines of these vessels are in duplicate. Two screw shafts are placed on each side of the vessel, driven respectively by a high and a low-pressure turbine, and to each of the low-pressure turbine shafts a small reversing turbine is permanently coupled for going astern, the estimated speed astern being 15½ knots and ahead 35 knots. Two propellers are placed on each shaft. The latter of the two vessels mentioned has already reached a speed of upwards of 32 knots. The manipulation of the engines is a comparatively simple matter, as to reverse it is only necessary to close one valve and open another, and as there are no dead centers, small graduations of speed can be easily made.—Cassier's Magazine for January.

SENATOR S. B. ELKINS has introduced a bill which calls for the amendment of Section 4136, Revised Statutes, to read as follows: "The Secretary of the Treasury may issue a register for any vessel built in a foreign country, whenever such vessel shall be wrecked in the United States and shall be purchased and repaired by a citizen of the United States, if it shall be proved to the satisfaction of the Secretary that the repairs put upon such vessel were made in the United States and are equal to three-fourths of the appraised value of the vessel when so repaired: Provided, that any vessel admitted to American registry pursuant to this section which shall engage in the coasting trade or fisheries of the United States shall be subject to forfeiture."

REPORTED BY THE LOOKOUT.

James O. Cole has been awarded the winter contract for tug service to supply the Chicago waterworks cribs with necessaries from December to April at the rate of $365 a month for each of three tugs. It is understood Mr. Cole is a tug captain working for ex-Alderman Miles E. Barry, who is said to own the tugs. One of the tugs is christened the Robert E. Burke.

W. A. Rogers has just purchased the steamers Fred Mercur and H. E. Packer for the Iroquois Iron Co., of South Chicago, in which Rogers, Brown & Co. are large stockholders. The boats were sold during the summer by the Lehigh company, to the owners of the Union furnace at Buffalo. The price is not stated but it is understood to be the same paid to the Lehigh company.

A dispatch says that Owen Sound will next year be the headquarters of another steamship line, which will compete with the Northern Navigation Co. for Sault Ste. Marie and north shore business and Mackinaw excursion traffic. The City of Windsor, which has been on the route during the last two seasons, will be re-enforced by two or three large steamers suitable for Mackinaw excursion business.

If no river and harbor bill is passed by this session of Congress, as has been intimated is likely to be the case, it will have no effect upon the completion of the Government breakwater in Milwaukee harbor. Capt. Warren, United States Engineer Corps, has awarded contracts which call for the completion of this pier on or before Dec. 31, 1900. The Government is virtually bonded to furnished the money to pay for this work, which is being done under a continuous contract. The provision for the money will be made in the sundry civil bill. The original appropriation for the Government pier to make a harbor of refuge in Milwaukee harbor was made in a river and harbor bill, but since then the money has been appropriated in the sundry civil bill.

The Sheriffs Manufacturing Co., which was established in 1854 by James Sheriffs, was incorporated in 1890, his son T. W. Sheriffs being chosen secretary, treasurer and general manager. He is a thoroughly competent and practical man and has been identified with the business since 1866. The Sheriffs' wheels, which are in great demand throughout the United States, and of which 150 were sold during the year 1899, range in diameter from 26½ inches to 13½ feet, and are made both solid and sectional. They are in use on many of the largest steamers on the lakes, and the Sheriffs is perhaps the first propeller wheel to merit popular favor. The company receive orders from Montreal on the north, Seattle and San Francisco on the west, Atlantic coast ports on the east and Texas, Louisiana and Cuba on the south. The company also manufacture all kinds of marine machinery including engines, steam steerers and dredge machinery and do a general repair business. Last year the triple engine, 14, 22½ and 36 by 30 inch stroke, which they constructed for the powerful tug W. H. Meyer, is said to be one of the finest finished pieces of machinery on the lakes. The Sheriffs' Manufacturing Co. has a large assortment of patterns for marine repairs, and their facilities enable them to make repairs day or night with dispatch, and they do about 90 per cent. of the repair work done at Milwaukee. Any one having steamers at that port cannot do better than patronize the Sheriffs.

THEY ENDORSE THE WEATHER BUREAU.

Buffalo Lodge No. 1, Shipmasters' Association, at a recent meeting adopted the following preamble and resolution:

Whereas, It has come to the knowledge of the Shipmasters' Association of the Great Lakes that H. R. Bill No. 3988 has been introduced by Representative Wadsworth, of New York, for the reorginization of the Weather Bureau upon plans submitted by that veteran chief of over twenty years service, Prof. Willis L. Moore, who has the advantage of both the practical and theoretical knowledge of all matters pertaining to the vast business interests covered by and carried on through the aid of this most important bureau, and more especially to the vast marine interests of the Great Lakes, and as his wise administration of this bureau has been heartily approved by both Democratic and Republican administrations, recommendations, therefore, coming from such a source, we are confident should command the urgent attention of Congress, as we know of no bureau rendering more value to the various business interests for the money expended than the Weather Bureau; therefore, be it

Resolved, That this association, at its regular monthly meeting, most heartily approve of H. R. Bill No. 3988, introduced by Representative Wadsworth of New York, and we respectfully and urgently ask the hearty support of the Hons. D. S. Alexander and W. H. Ryan, and for these our honored representatives, to use all means in their power to encourage and further the passage of said bill.

ICE REPORT.

The Weather Bureau official at Duluth, Minn., telegraphed to the Department at Washington, on the 25th:

Harbor ice ranges from 2 to 7 inches, being thickest in eastern portions; open channel on Duluth side; no ice of consequence in western Lake Superior.

At the corresponding date of 1898 there was from 4 to 10 inches more ice than now in the upper Missouri and upper Mississippi rivers, there being 10 inches in the former at Omaha, while the latter was frozen as far southward as Hannibal, Mo., where the ice was 6 inches thick. There was also much more ice in the lake districts and in New England, where the ice ranged from 7 to 12 inches.

VESSELS CLASSED.

Vessels classed and rated by the "American Bureau of Shipping," New York, in the Record of American and Foreign Shipping:

American screw, El Cid, owned by the Southern Pacific Co.; screw, Louisiana, owned by the Southern Pacific Co.; schooner, Jennie French Potter; schooner, Mary W. Bowen; barge, Paxtang; tern, Mary Curtis; tern, Chas. J. Willard; bark, Thomas A. Goddard and British half brig Acacia.

MICHIGAN VESSEL TAXATION.

Capt. A. E. Stewart, of Detroit, in an imformal talk with members of the Michigan Legislature, proposed a new plan for the taxation of vessel property. "It is unfair," said Capt. Stewart, "to assess vessels owned in this state for the municipal purposes of the cities in which vesselowners may live. The boats may not stop at such cities once a year. They get no benefit from the fire, police, lighting, sewer or water service, like other classes of property. Then why should they be taxed for them? The laws of adjoining states exempt vessel property, and this tends to drive vesselmen out of Michigan.

"The proper way to tax vessel property would be to make owners pay a license fee to the United States government, based on the tonnage of the boats. The government improves the waterways, and it would be consistent to have vessel property taxed in that way.

BRILLIANT METEORS.

Capt. Fleetham and the crew of the British steamship Grossmont, which is now lying at the Delaware breakwater after a successful voyage from Java, witnessed a splendid meteoric display on December 9, when the vessel was in latitude 33.14 and longitude 32.51.

A brilliant meteor was sighted in the heavens toward the southwest. It ascended to an altitude of ten degrees, where it remained an instant and then shot away in a northerly direction followed closely by a dozen other meteors of the brilliancy of the planet Venus.

A peculiar part of the display was the non-appearance of the fiery tails usually seen with meteors. Instead of these there was a brilliant show of exploding electric balls.

SHIPPING AT TWO HARBORS.

The last train of ore for the year arrived from the Fayal mine December 20 and was immediately shipped thus closing the ore shipping season of 1899. The season has been the best of any ever experienced. During the past summer it has been seldom, if at all that either the lumber or ore docks have been clear from loading boats, and for the first time it has been necessary to keep work going Sundays. Three million nine hundred and seventy thousand tons of ore passed through the docks, almost a third more than the best previous record. Two Harbors has from third place taken first rank among ore shipping ports.

THE steamer City of Paris, lying at a dock on the northwest side of Wells street bridge, Chicago, took fire Tuesday. The fire was in the forward part of the steamer and was soon put out by the fire boat Illinois which arrived on the scene very promptly.

TREASURY DECISIONS.

SALE OF MATERIAL OF A FOREIGN-BUILT VESSEL.

Duties would not attach to material resulting from breaking up and sale in the country of a foreign-built vessel.

TREASURY DEPARTMENT, December 14, 1899.

SIR: The Department is in receipt of your letter of the 9th instant, relating to the sale by the Navy Department of the steamship Scipio on the 28th instant, and in which you inquire, in the event of the vessel being broken up after its purchase, whether the material would be subject to duty if sold in this country.

In reply, I have to inform you that, upon the sale of said vessel in a port of the United States, the material or materials taken therefrom would not be regarded as an importation within the meaning of the customs laws, and would, therefore, be exempt from duty.

Respectfully, O. L. SPAULDING, Acting Secretary.

(7791 *i.*)

Mr. L. E. Lunt, Malden, Mass.

LICENSES OF MASTERS OF VESSELS.

Licenses of masters of sailing vessels of a capacity exceeding 700 tons must produce them, unless shown by certified articles presented, to have been already produced.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION, Washington, D. C., December 18, 1899.

SIR: This office is in receipt of your letter, dated the 15th instant, inquiring substantially whether masters required to be licensed, must produce their licenses in all cases to you before you recognize them in their official capacity.

The Bureau held, June 27, 1899, that officers of sailing vessels measuring over 700 tons, should be required to produce the statutory evidence of their right to serve. This evidence would ordinarily consist of the license. In some cases it may be inconvenient for the officers to produce the document, especially should it be framed under glass on board of the vessel.

If a shipping commissioner is satisfied that the statutory evidence has been produced, as shown by certified articles presented, he need not insist upon a second production of such evidence.

Respectfully, EUGENE T. CHAMBERLAIN, Com.

United States Shipping Commissioner, Norfolk, Va.

SAGINAW RIVER LUMBER TRADE.

The Saginaw Courier Herald has just published the Saginaw figures on lumber, thus making available the total receipts of the valley. Bay City's receipts from other ports, both foreign and American, were 57,484,461 feet, and Saginaw's 16,043,786 feet, making a grand total of 73,528,247 feet.

There reached the river during the season 5,337,450 pieces of lath and 150,000 shingles. There were rafted to the Saginaw river from Georgian Bay, Ont., during the season of 1899, logs to the amount of 24,522,808 feet, as compared with 154,997,171 feet in 1898.

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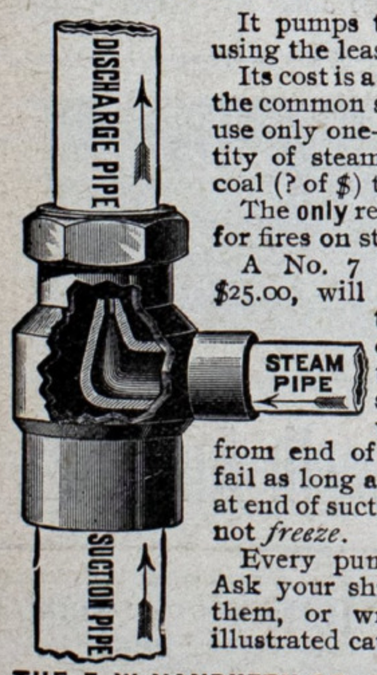

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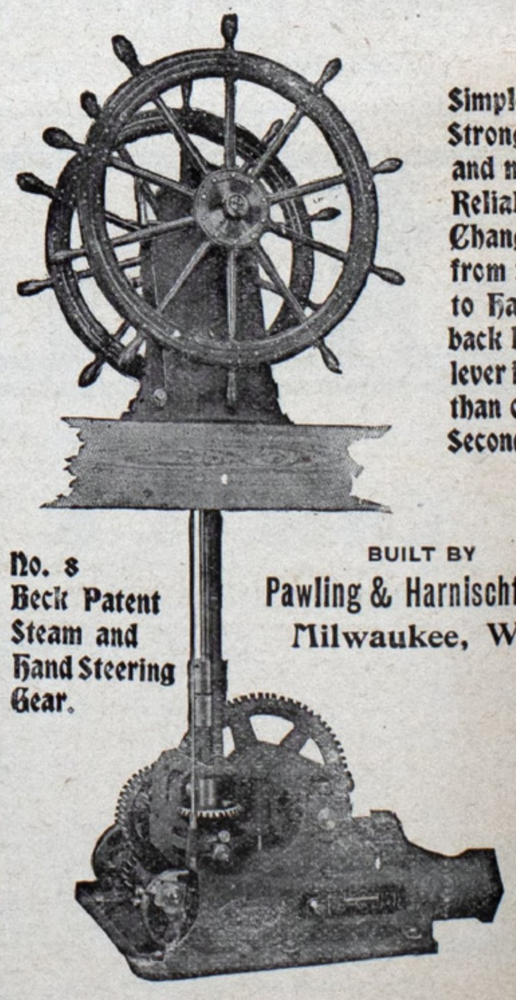

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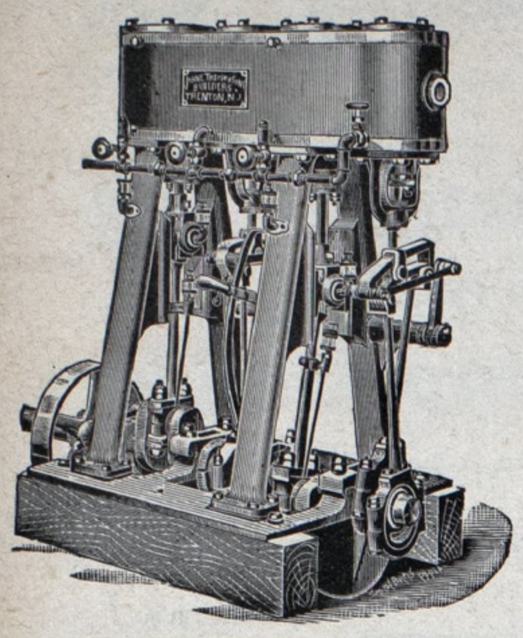

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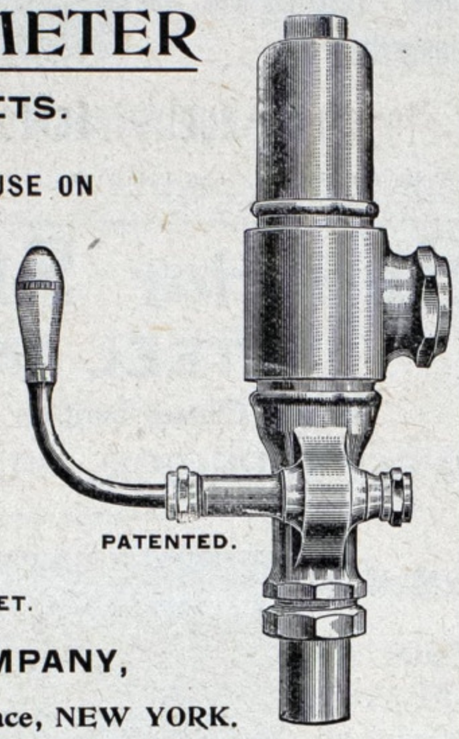

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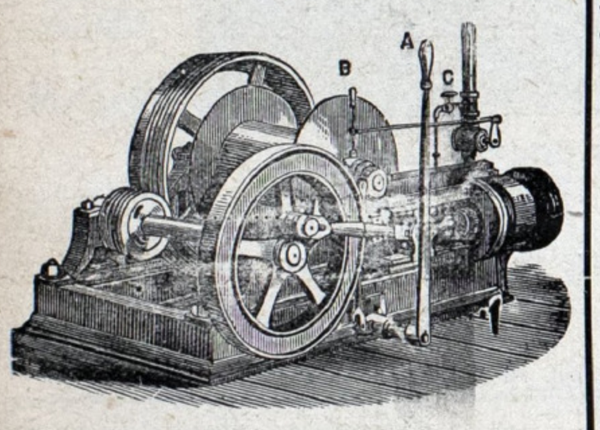

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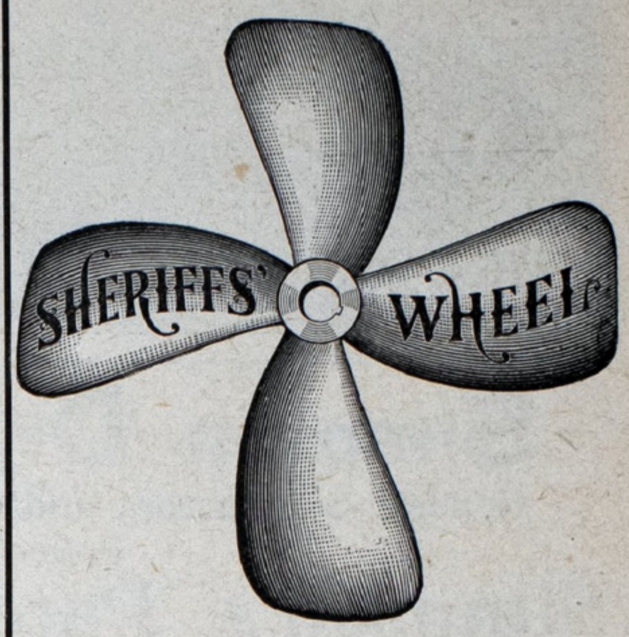

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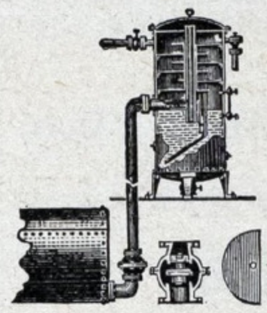

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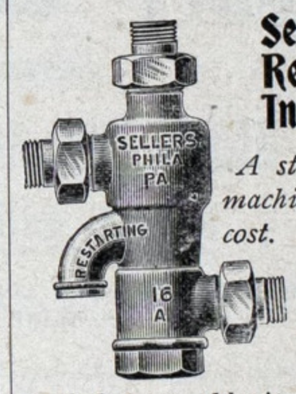

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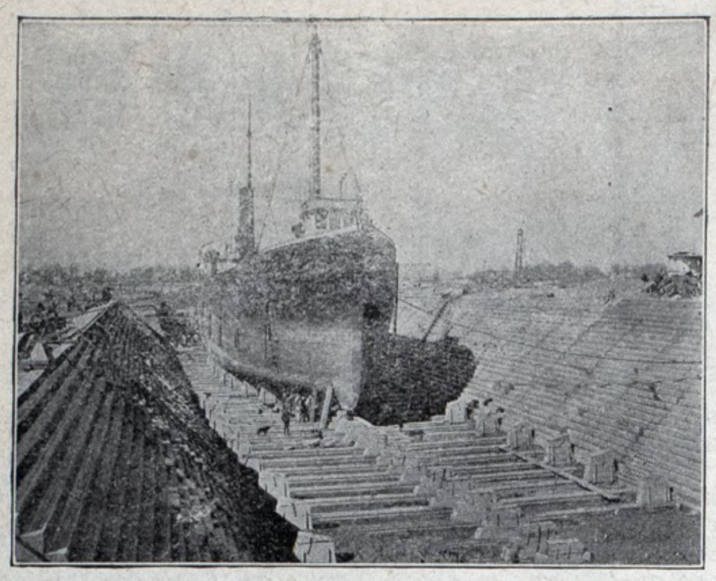

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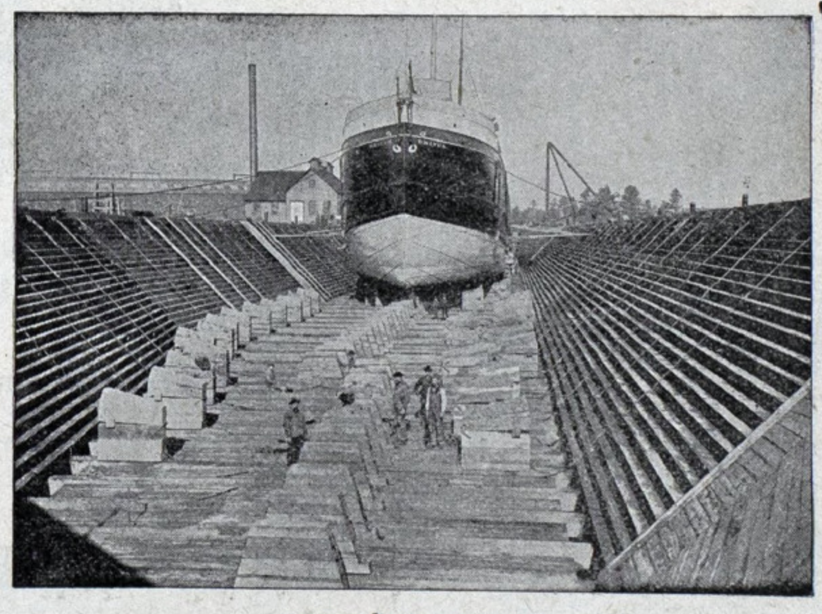

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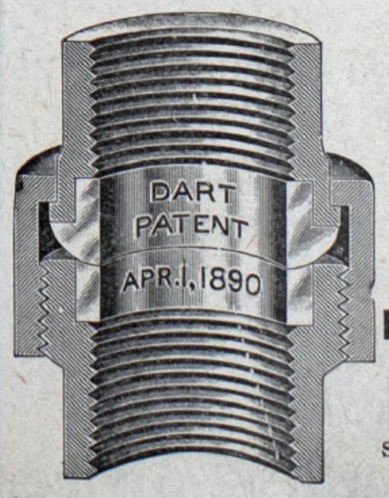

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